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ABSTRACT

A 3-year needs assessment study examined nutrition knowledge, attitudes, and food practices. Subjects were 135 preschool children ages 3-5 years, 610 parents, 118 day care teachers and providers, 35 food service personnel, and 76 administrators throughout Texas. Registered family day care homes, group day care homes, and day care centers from 11 regions were represented in the sample. Data included on-site physical fitness and health assessment, plate waste, food service practice observation, and mailed questionnaires. Major findings include the following: (1) older children were more likely than younger children to achieve the 70 percent acceptable nutrition knowledge level; (2) there were significant ethnic differences in children's nutrition knowledge; (3) children's food choices were affected by family income; (4) between 7-11 percent of the children were obese but 95 percent had average to excellent dental condition; (5) parents' knowledge and food choices were below the 70 percent acceptability level when children were assumed present and absent, whereas teachers and providers made more desirable food choices when children were assumed present but not when they were assumed absent; (6) although food service personnel demonstrated acceptable nutrition knowledge and planned nutritionally adequate menus, implemented menus often did not meet Child Care Food Program guidelines, and adequate food safety procedures were often not followed; and (7) administrators demonstrated an overall knowledge mean which met the level of 70 percent acceptability, and their attitudes toward nutrition were positive. Identified education and training needs for each subject group were listed, and a training plan was developed. (Nine appendices contain instruments used in the study. Contains 27 references.) (KDFB)

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# FINAL ANNUAL REPORT

# OF

# NUTRITION EDUCATION AND TRAINING NEEDS ASSESSMENT

# FOR

# FEDERAL FISCAL YEAR 1995

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# NUTRITION EDUCATION AND TRAINING NEEDS IN TEXAS

Mahassen Ahmad, Ph.D., Project Director
Ruth E. Martin, Ph.D., Principal Investigator

## STAGE I: PRESCHOOL CHILDREN

Third Phase: Collecting Information on the State of Nutrition Education and Training

Fourth Phase: Identifying and Prioritizing Needs

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# AN ASSESSMENT OF NUTRITION EDUCATION AND TRAINING NEEDS IN TEXAS

## I. EXECUTIVE SUMMARY

### Purpose

The Nutrition Education and Training (NET) program, established by the United States Congress in 1977, requires each state to conduct needs assessment on an ongoing basis. The purpose of the present study was the assessment of knowledge, attitudes, and food practices of preschool children, parents, teachers, food service personnel, and administrators throughout Texas. The needs of these separate groups and the interdependencies of learning, ethnicity, and family income were taken into consideration.

### Methodology

Goals and goal indicators for this three-year study were developed and validated by a two-phase Delphi process. Panel members were members of the Texas Interagency Council on Nutrition (ICON). Instruments were developed based on the goals and research questions. The Delphi process served as the establishment of content validity. Field tests were conducted and revisions were made accordingly. Procedures for measuring physical fitness and health, assessing plate waste, and observing food service practices were developed, reviewed by professional consultants, and field tested. Menu analyses for compliance of meals were developed.

### Sample Selection

Child care facilities in the 11 regions under the jurisdiction of the Texas Department of Human Services served as the population for the study. A random sample representative of care sites according to the three facility types (registered family home, group day care home, and day care center) was drawn. In drawing the sample, no information was available on the ethnicity, socioeconomic status, and learning level of the children. Five-hundred ninety-eight child care facilities were systematically selected from a population of 26,250 facilities. This group of 598 facilities was selected from 11 regions in the state and proportionally from the three types of facilities.

Letters of invitation to participate in the assessment were sent to randomly selected child care settings as follows: 358 (60%) registered family homes, 41 (7% group day care homes, and 199 (33%) day care centers, totaling 598. After two follow-up letters and telephone calls, approximately 100 centers responded to invitations to participate. Concerted efforts were made to achieve a sample proportional to the type of facility in the population. The response rate was 13.7%, registered family home; 14.6%, group day care home; and 23.6%, day care centers. In

addition, mail questionnaires were sent to randomly selected child care facilities to solicit responses from teachers, providers, food service managers, directors, and sponsors. The sample included 135 children, age 3; 143 children, age 4; 78 children, age 5; 610 parents, 46 teachers, 72 providers, 35 food service personnel, 28 directors, and 48 sponsors. The total number of participants was 1,332.

**Data Collection**

A research team was selected and trained to collect data. The team collected data on-site at 49 registered family homes, 6 group day care homes, and 47 day care centers. Data from these 92 sites included questionnaires, physical fitness and health assessments, plate waste, and food service practice observation. For the mail questionnaire, packets of instruments and directions were mailed to randomly selected child care sites and all sponsors (99). Completed instruments were returned to the NET research office at Texas Tech University (TTU).

**Data Analyses**

The project statistician coded the data and support staff entered the data into the mainframe computer for analysis. Data were randomly checked for accuracy and quality control. Descriptive statistics, analysis of variance, Scheffe procedures, chi-square tests, and standardized tests were computed. The standard of 70% was established for the measurement of acceptable performance on nutrition knowledge, nutrition attitudes, food choice, and food consumption. The researchers acknowledge that it would be ideal to have a higher standard than 70%, especially in adherence to the Dietary Guidelines for Americans (DGAs) wherein a 90% standard is advocated.

## Findings

Of the populations studied, younger children and parents did not achieve the 70% acceptable nutrition knowledge level. Older children achieved 74% and directors performed at 70% on the knowledge instrument. Nutrition attitudes were positive. Food choices, based on the DGAs, were below the 70% level for children, parents, and teachers (child not present). Observed food intake of children revealed a refusal rate of more than 10% for many Child Care Food Program (CACFP) food components.

Although planned menus were adequate for children's nutritional needs, the menus implemented were not in compliance with CACFP guidelines. No food component qualified 100% of the time for breakfast and lunch menus due to insufficient serving size. Food safety and sanitation are concerns since food temperatures (refrigerator, freezer) were not in compliance; food service cleanliness of work areas was not maintained; and routine hand washing by child care staff and children was not enforced.

## Children

The knowledge instrument test items were portrayed in colored drawings. Each question was read by a researcher in a private area of the child care site. The nutrition knowledge of younger preschool children was below the 70% level of acceptability. Older preschool children demonstrated an overall mean of 74%.

Further analysis was conducted to determine the effects of ethnicity, family income, and at-risk factors. Results of statistical tests will be reported according to these variables in relation to children's ethnicity, which centered on knowledge, attitudes, and nutrition behavior (food choices and food consumption). Significant differences were found for ethnicity according to nutrition knowledge of those children taking the four-item test. On both the four-item test and the eight-item test, the knowledge achievement for children in descending order was White, Hispanic, and African American. No significant differences were found for ethnicity on those children taking the eight-item test. Although not significantly different, attitudes of White children were higher than attitudes of African-American and Hispanic children.

The effects of family income, as indicated by free, reduced, or full price meals, were tested on knowledge, attitudes, and behaviors of preschool children. No significant differences in children's knowledge were related to family income. Students whose families qualified for reduced-price meals had significantly higher attitude values than those children who were eligible for free meals. Food choices of preschool children were affected by family income. Children who were eligible for reduced-price lunch made significantly more desirable fiber choices than those who qualified for free lunch. The results may be due to chance, however, since the full price meal students did more poorly than the reduced price students.

Health and physical fitness were assessed. Obesity was identified by a ratio of observed weight to the expected weight for observed height plotted on the Harvard growth charts. A range of 80-120 was considered normal (2 S.D. from 50%) and a result greater than 120 was judged "obese." The occurrence of obesity was identified in 7-11% of the preschool children according to age. Of the 358 children examined, 95% were found to have "average" to "excellent" dental condition. No significant differences were found according to age, gender, or ethnicity. Some concern was expressed about the need for improved immunization since 7-10% of these preschool children were not vaccinated for diphtheria, pertussis, tetanus, and polio; and 10% are susceptible to measles, mumps, or rubella.

## Parents and Teachers

Parents' nutrition knowledge and food choices when children were assumed present and assumed absent were below the acceptability level of 70%. Teachers and providers selected more desirable food choices when the children were assumed present; both teachers and providers

were below the acceptability level of 70% in their food choices when children were assumed absent. Only the teachers in day care centers demonstrated competency of nutrition knowledge at a level of 70%.

**Food Service Personnel**

Food service personnel demonstrated nutrition knowledge which was above the 70% acceptability level. The attitudes toward nutrition were positive (4.35/5.0). However, the management knowledge of this population was below the 70% level of acceptability. Lower comprehension was evident on the management subscales of food service and menu planning. Submitted menus met and exceeded the nutritional needs of children but the actual foods served did not meet the CACFP guidelines. Substituted food components, in general, did not qualify for replacements in the submitted menus. In addition, serving sizes were deficient. Practices, such as food safety and sanitation, were not professional.

**Administrators**

The administrators, including day care center directors and family day home sponsors, demonstrated an overall knowledge mean which met the level of 70% acceptability. Their attitudes toward nutrition were positive. Almost 100% of the sponsors and 86% of the directors indicated that nutrition education is integrated with other activities. Directors identified the child care center library and meal service as the resources used most often in teaching nutrition; sponsors indicated the U.S. Department of Agriculture (USDA) child nutrition program and meal service as the resources used most.

## Coordination and Support

In the analysis of coordination and support of nutrition education, differences were found between teachers, food service personnel, and administrators. The responses to problems which would interfere with nutrition education indicated that the dominant themes were insufficient funds to support nutrition education; lack of interest among parents, directors, and caregivers; and lack of time to plan, coordinate, and implement nutrition education.

Over 90% of the directors reported that nutrition education is taught in their centers. This finding is supportive of teachers (90%) and providers (85%) responses about giving instruction on nutrition. Directors noted that the main nutrition concepts to be taught should be healthy food choices, food safety and sanitation, and nutritional needs. Teachers reinforced the directors selected nutrition subscales of healthy food choices and food safety; however, they identified the basic four food groups, not nutritional needs.

Effective factors in teaching nutrition were identified. Differences were found between administrators, food service personnel, and providers. In-service training was identified as an

effective factor by the highest percentage of administrators (directors and sponsors). However, over 75% of the food service personnel specified aid from the director and aid from the cook as the most effective factors. Over 60% of the providers reported that aid from the director and nutrition curriculum would be the most effective factors in teaching nutrition. Over 75% of the food service personnel indicated that they were involved in nutrition education.

Some clarification and communication among the administrators, teachers, and food service personnel could help strengthen nutrition education. The directors and sponsors indicated that the coordinator of nutrition education was: (1) director/administrator, (2) teacher, and (3) food service personnel. The teachers ordered the coordinator of nutrition education as: (1) child care director, (2) food service personnel, (3) dietitian, and (4) teacher. From a different view, food service personnel identified the coordinator as: (1) director, (2) food service personnel, (3) parent, and (4) day home administrator.

## Identified Needs and Recommendations

### Nutrition Education Needs of Preschool Children

Knowledge - Build on positive attitudes to increase nutrition knowledge of younger preschool children. Initiate nutrition knowledge at an early age.

Food choices - Improve the selection of food choices compatible with the DGAs.

Food consumption - Decrease the refusal rate to less than 10% for all of the CACFP meal components, except fruits/vegetables at meal time.

Health - Increase the level of immunization participation to 100%.
- Monitor the prevalence of obesity.
- Evaluate the amount of television viewing in light of sedentary activity.

### Nutrition Education and Training Needs of Parents

Knowledge - Increase the nutrition knowledge achieved by parents including nutrition and learning, healthy food choices, DGAs, and nutrition and health/fitness.

Food choices with children assumed present - Improve food choices in regard to the selected DGAs: fat, fiber, sodium, variety, and total food choices.

Food choices with children assumed absent - Improve food choices in regard to the selected DGAs: sugar, fat, sodium, variety, and total food choices.

**Nutrition Education and Training Needs of Educators (Teachers and Providers)**

Knowledge - Increase nutrition knowledge of teachers and providers in the area of DGAs. Increase knowledge of teachers in healthy food choices.

Food choices of educators with children not present - Improve the desirability of food choices in following the DGAs in sugar, fat, fiber, sodium, variety, and total food choices.

Nutrition education coordination - Increase the opportunities for nutrition education through integrating instruction in every phase of the food process: from purchasing, preparing, serving, selecting food components, relation of nutrition to healthy life styles in learning areas, and interfacing with parents and the community.

**Nutrition Education and Training Needs of Food Service Personnel and Providers**

Knowledge - Strengthen knowledge in nutrition and health/fitness.

Management knowledge - Increase management knowledge in general and in menu planning and food service.

Menu compliance with DGAs and CACFP - Apply the principles of planned menus to substitutions in the actual food served. Require the appropriate serving size of the food components being served.

Nutrition education - Increase nutrition education through related activities in cooperation with parents, teachers, and administrators.

Participation in meal program - Address the appearance of food to make it more appealing to children.

Provide training - On appealing foods for children, menu planning with emphasis on making appropriate menu substitutions.

**Nutrition Education and Training Needs of Administrators**

Knowledge - Achieve knowledge of relationships between nutrition and learning.

Nutrition education and support - Address the inhibitors of nutrition education in order to form an effective collaborative team effort. In particular:

- Enlist the interest of caregivers, parents, teachers, and administrators in facilitating nutrition education;

- Monitor resources such as time to plan, coordinate, and implement nutrition education;
- Increase support materials on nutrition education; and
- Initiate nutrition education and positive food-related experiences at a very early age.

**Recommendations**:

- Improve food safety by requiring the use of refrigerator and freezer thermometers, record temperatures, and make adjustments.
- Implement sanitation practices by introducing and maintaining high cleanliness standards.
- Develop a support group to share recipes, purchasing strategies, preparation techniques, food service to increase meal components acceptance.
- Reinforce good eating patterns within a diversity of dietary practices.

**Scheduling and Training Format for all Populations**

Parents - Conduct nutrition education in a training format with a variety of methods to meet the needs of diverse backgrounds. Address the importance of the relationship of nutrition and health/fitness, and the relationship of nutrition and learning.

Educators - Capture the high interest of teachers in learning more about nutrition education through their preference of videocassettes and/or media and group discussions. Provider-teachers preferred a workshop format for their training.

Food service - Involve food service managers in the following formats: workshop, media presentations, and group discussion. Food service providers had identical preferences for training formats.

Administrators - Build on the positive attitudes toward nutrition education in holding nutrition training sessions on the need to formulate and implement strategies to strengthen and support nutrition education across the various populations.

**Needed Nutrition Education Materials and Resources**

There is a critical need to implement nutrition practices that are in compliance with the DGAs. This requires training sessions with support materials on the following:

- Providing meals that can serve as a laboratory to apply critical thinking skills to food selection;
- Making correct menu substitutions;
- Serving adequate portions of food components to ensure sufficient nutrients, and if necessary, acquire serving equipment tailored to measured portion sizes;
- Correct serving portion sizes;
- Planning, preparing, and serving nutritious and appealing food;
- Enforcing food safety principles; and
- Implementing high standards of cleanliness.

Resources - Provide resources on:

- The crucial role of nutrition behavior and health/physical fitness throughout life to decrease the possibility of chronic disease.
- The teamwork of leaders in various funded programs to promote optimum food and nutrition education without duplicating resources.

**Recommendations:**

To improve the nutrition knowledge and behaviors of targeted populations in general, it is recommended that nutrition educators:

- Focus relevant training to the identified needs of children, parents, teachers, food service personnel, providers, and administrators.
- Plan and implement training tailored to participants of different family income and multicultural/ethnic groups.
- Decrease children's food refusal rate by training food service personnel in planning and serving nutritious meals which are more appealing to their clientele.
- Increase the food service personnel's competence in evaluating food acceptance in child care settings; encouraging children to participate in meal planning and food preparation; including ethnic foods in the menus and food service; and orienting children with new foods through education and exposure.

## II. INTRODUCTION

The NET Program supports the nutrition education and training segment of the Child Nutrition Programs of the USDA. Until November of 1977, when Congress passed Public Law 95-166, which established the NET Program, research on nutrition education among preschool children was limited. With the advent of this legislation, the status of research productivity in this area changed, wherein nutrition education and training needs are assessed yearly within each state.

The regulations for this legislation authorize the Secretary of Agriculture to provide for: a) the nutritional training of educational and food service personnel; b) the food service management training of school food service personnel; and c) the conduct of nutrition education activities in schools and child care facilities (USDA, 1979).

According to the regulations, each state agency is to conduct an ongoing needs assessment, whereby the data base will be utilized in formulating the state plan for each fiscal year. The needs assessment is a tool used to determine the discrepancies between "what should be" and "what is" in nutrition education and training. The needs assessment efforts determine: (a) children, teachers, and food service personnel in need of nutrition education and training; (b) materials which are currently available for nutrition education and training programs; (c) available documentation for the competencies of teachers in the area of nutrition education; (d) available documentation of the competencies of food service personnel; (e) problems encountered by schools and institutions in procuring nutritious food economically and in preparing nutritious, appetizing meals, and areas where training can assist in alleviating these problems; (f) problems teachers encounter in conducting effective nutrition education activities, and areas where in-service training or materials can assist in alleviating these problems; (g) problems in dietary habits of children, and areas where nutrition education may assist in positive changes; (h) problems in coordinating the nutrition education by teachers with the meal preparation and activities of the food service facility, and the areas where training might alleviate these problems (USDA, 1979).

In brief, the NET regulations for each state necessitates an ongoing nutrition education and training needs assessment. The needs assessment data base is crucial in formulating the nutrition and training needs state plan for each fiscal year. All populations are eligible to participate in activities and request services from the NET Program. However, with current funding, it is impossible for NET to serve everyone. Thus, needs assessment identifies target populations with highest needs and sets priorities for nutrition education and training activities.

## Methodology

### Instruments

The validated goals and indicators established in Year I of the Project (Appendix A) served as the table of specifications for the Nutrition Education and Training needs assessment (Gronlund & Linn, 1990). Since preschool children were included in the target populations in Year III, assessment instruments were designed to collect individual performance on nutrition knowledge, attitudes, food choices, and physical fitness data. When appropriate for the target populations, the instruments developed in Year I served as a reference point. For this phase of the study, instruments were developed to: (a) measure the nutrition knowledge, attitudes, and practices (food choices) of children, parents, providers, teachers, food service personnel, directors, and sponsors; (b) measure the type and amount of foods served, consumed, and/or discarded by children through child care facility menu analysis and children's plate waste; (c) collect information on children's health (height, weight) and physical fitness (body fat and dental condition); and (d) collect data on the promotion of nutrition knowledge, attitudes and behavior and the relationships of health, physical fitness and learning.

Parental consent was solicited to collect data on medical history, health, and physical fitness of children. Items on demographic information from each of the target populations were included in the instrument. As the instruments were developed, they were tailored to the table of specifications and the target populations. The validity and reliability of the instruments were measured and field testing of the instruments was followed by making appropriate revisions.

Assessment of food service practices included: (a) weekly menu analysis through the submission of planned day care breakfast and lunch menus for compliance measures; (b) compliance observations through comparing the actual food served with what was planned to be served and the amount of food served according to USDA; and (c) operational behavior through an on-site observation/interview by a trained researcher who was to record the information on a prepared form. As much of the information as possible was to be collected by observation; if impossible, the trained observer was to ask questions of the food service personnel.

A major challenge was to develop appropriate instruments which could be used to assess nutrition knowledge, attitudes, and food choices for illiterate preschool children. In the review of literature, a limited number of assessment instruments was found for this target population.

To accommodate the Hispanic population, the assessment instrument was translated into Spanish. In addition, a Spanish interpreter traveled with the data collection team in geographic areas of heavily populated Spanish-speaking people.

For the cover of the questionnaires an appropriate graphic design was selected (Salant & Dillman, 1994). This design was selected to portray the content of the questionnaire and to make the instrument more appealing for response and participation.

## Children's Instruments

### Knowledge

To measure the nutrition knowledge of the children, questions were drafted based on the goal indicators. From this information, an artist collaborated on drawing pictures which depicted the content of the questions. There were four items for younger children (3-year-olds) on healthy food choices, nutrition and health/fitness, self-responsibility for food selection, and nutrition and learning. The older children (5-year-olds) had eight items based on identical indicators. Each question was displayed with two choices, in color on 8-1/2" by 11" paper and was protected with heavy lamination for ease of handling. In a private setting the researcher was to read the question and the two responses which were written on the reverse side of the instrument. A copy of the instrument is included in Appendix B.

### Attitudes

Seven short sentences, based on the indicators, were used to assess children's nutrition attitudes. The researcher was to read each sentence individually to the children and each child could select a positive or negative response to the statement by pointing to a "happy" face or a "sad" face. For ease of administering, the expressions of happy or sad were portrayed on a manila type folder for the children viewing the facial expressions. Care was taken to have both negative and positive statements in the instrument. The nutrition attitude assessment instrument is included in Appendix B.

### Food Choice

Professional food models were ordered and assessed for their representation of actual food components. Decisions on food choice questions were made on the DGAs and quality of the food models. Although 10 questions on food choice items were field tested, six were selected for the final instrument. Each child was assessed individually. The food choice assessment instrument is in Appendix B.

### Health and Physical Fitness

Procedures for assessing health and physical fitness were prepared by the pediatrician research team member for the health examiners (team members) who were cross-trained to collect data in a standard manner. During the on-site visit, the team collected data from children with parental permission to participate in the measurement of health and physical fitness. Height, weight, tricep skinfolds, and dental condition were assessed. Standard equipment including a digital scale was used. The Physical Assessment Form was used to record all health and physical fitness data. Support material for the health and physical fitness is found in Appendix B.

## Observed Food Intake

Children's food intake was observed by a registered dietitian. Directions and the instruments are in Appendix B. Children with parental permission were identified for observation on the day of the site visit. Either breakfast or lunch was determined and the appropriate USDA meal pattern form was used. When possible, the supplemental snack was observed and recorded.

## Procedures

The assessment at the child care site was designed for an interview format. Directions included that each child was interviewed privately and the answers were to be recorded by the interviewer during the session. In small homes or crowded environments, children were to be interviewed individually in a corner of the room. All questions on nutrition knowledge, attitudes and food choice were to be read verbatim. The rationale was that these children could not read, consistency would be maintained, and the assessment could be completed during the on-site visit.

These procedures and developed questions, based on the project goals and goal indicators, were field tested with children in family day homes, family group homes, and child care centers. Approximately 50 children were included in the field testing. Project team members, including the director, reviewed the instruments and procedures. Data were entered into the computer and central tendencies were run and interpreted. Appropriate revisions were made based on the data analysis, responses and reactions of the children, and the team.

## Parent Instruments

Instruments for the parents were developed from the goals and goal indicators established in Year I and the questionnaire developed in Year I. The instrument included the assessment of nutrition knowledge, attitudes, and food choices with the children assumed present and with the children presumed absent. In addition, parents completed the family medical history form which was based on suggestions from the project pediatrician. The team members reviewed the various instruments contained in the assessment and approval was given for collection of data. Parents' instruments are found in Appendix C.

## Provider and Teacher Instruments

The provider and teacher instruments were interrelated because day home providers serve as the caretaker, teacher, and food service personnel. In large settings, the provider may be assisted by staff who serve as teacher and as food service personnel.

As stated in developing instruments for other target populations, the goals, indicators, and instruments developed in Year I served as the basis for the development of assessment

instruments for providers and teachers. This target population was assessed on knowledge, attitudes, food choice, and their involvement in teaching nutrition to children. Prior to administering the questionnaires, the team members provided input and a child care sponsor also gave suggestions on the instrument content and the procedures to be followed. Copies of the questionnaires are found in Appendices D and E.

**Food Service Personnel/Provider Instruments**

Instruments on nutrition knowledge, including management knowledge, attitudes, and food choice were developed. In addition, menu analysis and observed operational practices were incorporated as part of the food service data. The food service personnel were also asked to provide responses on administrative support, teacher support, and coordination of nutrition concepts. This questionnaire was reviewed by the team director and other team members. The food service questionnaire is found in Appendix F.

**Administrators: Day Care Center Director and Day Home Sponsor Instrument**

In this study the day care center director and the day home sponsor are categorized as the administrators. The director is more involved at the primary child care program and serves as the executive for managing the program. The director is based on the premises of the facility and has frequent contact and meetings with the support staff. On the other hand, the sponsor oversees child care programs from a distance and may be responsible for a large geographic region of child care programs. Although different in operation, the director and sponsor are still responsible for meeting standards in nutrition, sanitation and safety, and other related qualities in an approved program. Copies of the administrators' questionnaires are found in Appendix G.

## Sample

**Target Populations and Sub-populations**

Three facility types were designated as the sampling units. They were: registered family home, group day care home, and day care centers. The definitions for these facility types are (Regulations of Child-Care Facilities, 1994):

> **"Family day home"** means a home that regularly provides care in the caretaker's own residence for not more than six children under 14 years of age, excluding the caretaker's own children, and that provides care after school hours for not more than six additional elementary school children, but the total number of children, including the caretaker's own, does not exceed 12 at any given time.
>
> **"Group day-care home"** means a facility that provides care for 7 to 12 children under 14 years of age for less than 24 hours a day.

**"Day-care center"** means a facility that provides care for more than 12 children under 14 years of age for less than 24 hours a day.

Data were collected from three-year-old to five-year-old children and from their parents, teachers and/or providers, food service personnel, day care center directors, and day home sponsors.

**Sample Selection**

Child care facilities in the 11 regions under the jurisdiction of the Texas Department of Human Services served as the population for the study. A random sample representative of care sites according to the three facility types (registered family home, group day care home, and day care center) was made. The Department of Human Services provided a hard copy directory of all day care facilities in the state of Texas. The directory identified the name, facility type, address, phone number, and region of the various child care sites.

The sample size was determined through a formula proposed by Krejcie and Morgan (1970) with the consideration of (a) a known population size, (b) a specified confidence level (e.g., 95%), and (c) a degree of accuracy as reflected by the amount of sampling error that can be tolerated (e.g., +0.05, or +5%). In drawing the sample, no information was available on the ethnicity, socioeconomic status, and learning level of the children.

Five-hundred ninety-eight child care facilities were systematically selected from a population of 26,250 facilities. This group of 598 facilities was selected from 11 regions in the state and proportionally from the three types of facilities.

**Securing Required Approvals**

Following the approval of the project "Nutrition Education and Training Needs in Texas" by the TTU Committee for the Protection of Human Subjects (May 27, 1993), plans were made to request approval from the target populations. Requests to collect data from preschool children, their parents, providers, teachers, food service personnel, and administrators (directors and sponsors) were made to the day care settings.

The Child Consent Forms were sent to the randomly selected child care facilities for approval by parents on-site at the child care facility, or sent home with children for parental approval. Parents were asked to complete the form and return it promptly to the child care facility with their child. Correspondence related to preschool children is found in Appendix H.

**Sample Size**

The letters of invitation to participate in the assessment were sent to randomly selected child care settings as follows: 358 (60%) registered family homes, 41 (7%) group day care

homes, and 199 (33%) day care centers, totaling 598. After two follow-up letters and telephone calls, approximately 100 centers responded to invitations to participate. Concerted efforts were made to achieve a sample proportional to the type of facility in the population. The response rate was 13.7%, registered family homes; 14.6%, group day care homes; and 23.6%, day care centers. In addition, mail questionnaires were sent to randomly selected child care facilities to solicit responses from teachers, providers, food service managers, day care center directors, and family day home sponsors. The information of the final sample composition is displayed in Table II-1. The sample included 135 children, age 3; 143 children, age 4; 78 children, age 5; 610 parents; 73 teachers; 160 providers; 55 food service personnel; 28 directors; and 48 sponsors. The total number of participants was 1,332.

**Table II-1. Sample Composition**

| Population | On-Site Observation | Mail Questionnaire | Combined Total |
|---|---|---|---|
| Children | 358 | - | 358 |
| Parents | 610 | - | 610 |
| *Educators* | | | |
| Teachers | 46 | 27 | 73 |
| Providers | 72 | 88 | 160 |
| Food Service | 35 | 20 | 55 |
| *Administrators* | | | |
| Directors | - | 28 | 28 |
| Sponsors | - | 48 | 48 |

## Demographic Information

The demographic information on gender, age, and ethnicity is listed by group. The demographics on sample groups are sequenced by target population: children, ages 3-5; parents, educators (providers and teachers), food service personnel; and administrators (directors and sponsors).

The demographic information for the sample identifies the number of participants according to variables such as gender, age, ethnicity, and education. In reporting the findings, the numbers for the sample may not always be consistent due to data collected from on-site, mail questionnaire, combined sample, and missing cases. In addition, due to the low representation of the total sample, Asian and Pacific Islander and American Indian ethnic groups were not identified in the study. Data were combined from on-site and mail questionnaires when no significant differences were found between the two sources of data.

## Children

Table II-2 includes the gender and age of children. Of the total population (358) over one-half were females (56.4%) and lower were males (43.6%).

**Table II-2. Age and gender of children**

| | 3-Year-Old | | 4-Year-Old | | 5-Year-Old | | Total Children | |
|---|---|---|---|---|---|---|---|---|
| Gender | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| Male | 68 | 50.4 | 54 | 37.8 | 32 | 41.0 | 156 | 43.6 |
| Female | 67 | 49.6 | 89 | 62.2 | 46 | 59.0 | 202 | 56.4 |
| Total | 135 | | 143 | | 78 | | 358 | |

Ethnicity, in descending order was White, 57.3%; Hispanic, 29.5%; and African-American, 11.8%. This information on ethnicity is shown in Figure 1.

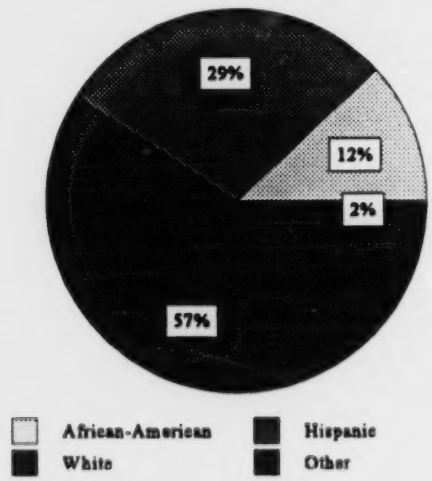



**Figure 1. Ethnicity of children**

## Parents

Table II-3 includes the gender, ethnicity, age, and education of the children's parents.

**Table II-3. Gender, ethnicity, age, and education of parents**

| | PARENTS | |
|---|---|---|
| **VARIABLE** | **Number** | **Percent** |
| ***Gender*** | | |
| Male | 281 | 46.9 |
| Female | 318 | 53.1 |
| ***Total*** | ***610*** | ***100.0*** |
| ***Ethnicity*** | | |
| African-American | 72 | 11.9 |
| Hispanic | 218 | 35.9 |
| Asian & Pacific Islander | 4 | 0.7 |
| American Indian | 5 | 0.8 |
| White | 308 | 50.7 |
| ***Total*** | ***610*** | ***100.0*** |
| ***Age*** | | |
| Under 19 | 21 | 3.5 |
| 20-29 | 234 | 38.7 |
| 30-39 | 299 | 49.4 |
| Over 40 | 49 | 8.1 |
| ***Total*** | ***610*** | ***100.0*** |
| ***Education*** | | |
| Less than 8th grade | 22 | 3.6 |
| Grades 9-12 | 69 | 11.3 |
| High school/GED | 272 | 44.7 |
| Technical or associate | 72 | 11.8 |
| College | 134 | 22.0 |
| Graduate School | 40 | 6.6 |
| ***Total*** | ***610*** | ***100.0*** |

In Table II-3 the majority of the parents who responded were females (53.1%); males comprised 46.9% of the parents. Ethnicity representation was similar to the children: White, 50.7%; Hispanic, 35.9%; and African-American, 11.9%. Almost one-half (49.4%) of the parents were between 30-39 years of age. The level of education achieved most was high school/GED (44.7%), followed by college (22.0%).

**Educators: Teachers and Providers**

Table II-4 includes the gender, ethnicity, age, and education of teachers and providers. Providers (registered family home and group day care home) serve as teachers of children in the homes. In the day care centers, which accommodate more children, teachers facilitate the learning process.

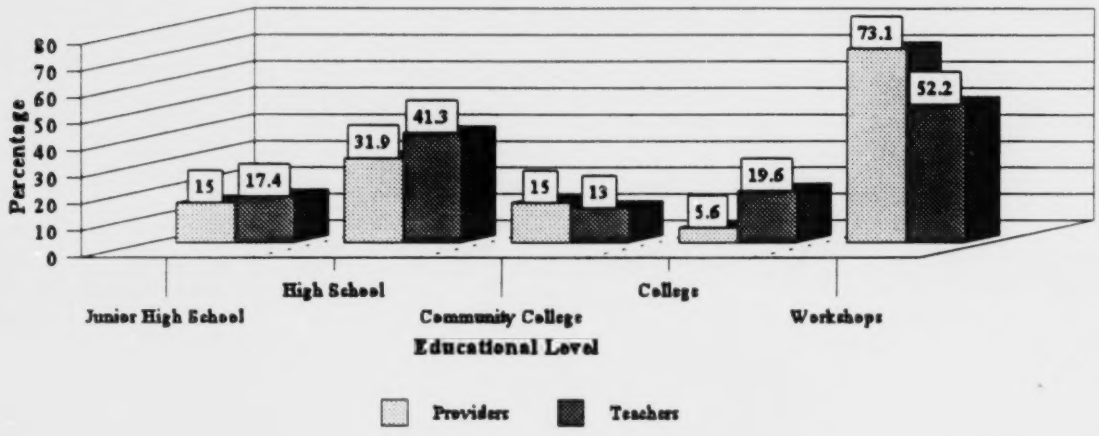
**Table II-4. Gender, ethnicity, age, and education of teachers and providers**

| VARIABLE | PARENTS | | PROVIDERS | |
|---|---|---|---|---|
| | Number | Percent | Number | Percent |
| ***Gender*** | | | | |
| Male | - | - | 1 | 0.6 |
| Female | 71 | 100.0 | 159 | 99.4 |
| ***Total*** | ***71*** | ***100.0*** | ***160*** | ***100.0*** |
| ***Ethnicity*** | | | | |
| African-American | 15 | 21.1 | 17 | 10.8 |
| Hispanic | 18 | 25.4 | 28 | 17.8 |
| Asian & Pacific Islander | - | - | 1 | 0.7 |
| American Indian | - | - | - | - |
| White | 38 | 53.5 | 111 | 70.7 |
| ***Total*** | ***71*** | ***100.0*** | ***157*** | ***100.0*** |
| ***Age*** | | | | |
| Under 19 | 3 | 4.2 | 1 | 0.6 |
| 20-29 | 24 | 33.8 | 13 | 8.5 |
| 30-39 | 22 | 31.0 | 59 | 38.6 |
| Over 40 | 21 | 29.6 | 80 | 52.3 |
| ***Education*** | | | | |
| Less than High School | - | - | 8 | 5.0 |
| High School | 21 | 29.1 | 50 | 31.4 |
| Some College | 30 | 41.7 | 61 | 38.4 |
| Associate Degree | 9 | 12.5 | 12 | 7.5 |
| Bachelors Degree | 10 | 13.9 | 20 | 12.6 |
| Masters Degree | 2 | 2.8 | 8 | 5.0 |

Data in Table II-4 indicate that all teachers were female; all providers were female with two people not responding to the gender question. Over one-half of the teachers were White (53.5%); one-

fourth were Hispanic (25.4%); and one-fifth were African-American (21.1%). As shown in the table, the age of teachers and/or providers ranged from under 19 years to over 40 years of age. The educational level ranged from a high school diploma to a graduate degree.

Figure 2 illustrates the educational site where teachers and providers studied nutrition.




## Figure 2. Nutrition education as reported by teachers and providers

Figure 2 shows that approximately one-half of the teachers indicated that they had studied nutrition in high school (49.3%) and workshops (52.1%). Only one-fifth of the teachers had studied nutrition in college. About 7 of 10 providers learned about nutrition at workshops. Nutrition education during junior high was the same for providers as for teachers; at the high school level, a lower percentage of providers than teachers had studied nutrition.

### Food Service Personnel

Table II-5 shows the gender, ethnicity, age, and education of the food service personnel.

**Table II-5. Gender, ethnicity, age, and education of food service personnel**

| | Food Service Personnel | |
|---|---|---|
| **VARIABLE** | **Number** | **Percent** |
| ***Gender*** | | |
| Male | 2 | 3.6 |
| Female | 53 | 96.4 |
| ***Total*** | ***55*** | ***100.0*** |
| ***Ethnicity*** | | |
| African-American | 8 | 14.5 |
| Hispanic | 12 | 21.8 |
| Asian & Pacific Islander | 1 | 1.8 |
| American Indian | 2 | 3.6 |
| White | 32 | 58.2 |
| ***Total*** | ***55*** | ***99.9*** |
| ***Age*** | | |
| Under 19 | | |
| 20-29 | 6 | 10.9 |
| 30-39 | 18 | 32.7 |
| Over 40 | 31 | 56.4 |
| ***Total*** | ***55*** | ***100.0*** |
| ***Education*** | | |
| Less than High School | 1 | 1.8 |
| High school | 17 | 30.9 |
| Some College | 16 | 29.1 |
| Associate Degree | 4 | 7.3 |
| College Degree | 13 | 23.6 |
| Graduate Degree | 4 | 7.3 |
| ***Total*** | ***55*** | ***100.0*** |

Table II-5 shows that the majority of food service personnel were over 40 years of age (56.4%). The majority of food service personnel were females. Almost 60% of the food service personnel were White, over one-fifth were Hispanic, and 14.5% were African-American. Over one-half had completed high school and had taken some college credits.

Figure 3 illustrates the educational level where nutrition was studied by food service personnel.

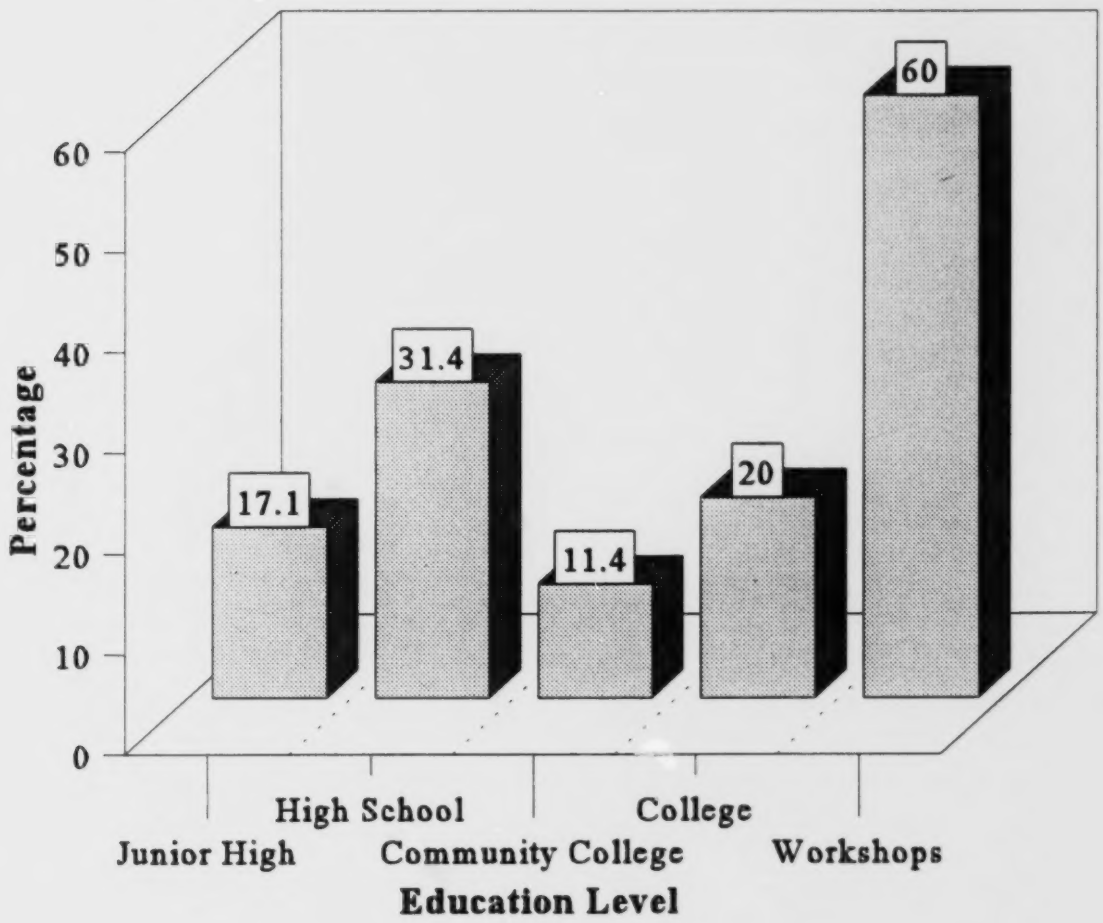



**Figure 3. Nutrition education as reported by food service personnel**

It is apparent from Figure 3 that 60% of the food service personnel had studied nutrition in workshops. Approximately one-third of the food service personnel had studied nutrition in high school.

Twenty percent studied nutrition in college. Nutrition education of food service personnel during junior high was approximately the same as for teachers.

**Administrators: Day Care Center Directors and Day Home Sponsors**

Table II-6 displays the gender, ethnicity, age, and education of the directors and sponsors.

**Table II-6. Gender, ethnicity, age, and education of directors and sponsors**

| VARIABLE | DIRECTORS | | SPONSORS | |
|---|---|---|---|---|
| | Number | Percent | Number | Percent |
| *Gender* | | | | |
| Male | 1 | 3.8 | 2 | 16.7 |
| Female | 25 | 96.2 | 40 | 83.3 |
| *Total* | *26* | *100.0* | *42* | *100.0* |
| *Ethnicity* | | | | |
| African-American | 2 | 7.7 | 7 | 14.6 |
| Hispanic | 1 | 3.8 | 5 | 10.4 |
| Asian & Pacific Islander | - | - | 3 | 6.3 |
| American Indian | 1 | 3.8 | - | - |
| White | 22 | 84.6 | 33 | 68.7 |
| *Total* | *26* | *100.0* | *48* | *100.0* |
| *Age* | | | | |
| Under 19 | - | - | - | - |
| 20-25 | 1 | 3.8 | 1 | 2.1 |
| 26-30 | 2 | 7.7 | 1 | 2.1 |
| 31-35 | 2 | 7.7 | 9 | 19.1 |
| 36-40 | 5 | 19.2 | 7 | 14.9 |
| 41-45 | 7 | 26.9 | 15 | 31.9 |
| Over 46 | 9 | 34.6 | 14 | 29.9 |
| *Total* | *26* | *99.9* | *47* | *100.0* |
| *Education* | | | | |
| High School or GED | 3 | 11.5 | 2 | 4.2 |
| Some College | 15 | 57.7 | 13 | 27.1 |
| Bachelors Degree | 5 | 19.2 | 20 | 41.7 |
| Masters Degree | 2 | 7.7 | 8 | 16.7 |
| Masters Degree plus | 1 | 3.8 | 5 | 10.4 |
| *Total* | *26* | *99.9* | *48* | *100.0* |

Table II-6 indicates that of the 26 directors, 25 (96.2%) were female. Ethnicity representation was: White, 84.6%; African-American, 7.7%; Hispanic, 3.8%; and American Indian, 3.8%. There were two male sponsors and 40 female sponsors (83.3%). Ethnicity representation was: White, 68.7%, African-American, 14.6%; Hispanic, 10.4%; and Asian & Pacific Islander, 6.3%. The age range for sponsors was 20 years of age to over 46.

## Data Management

### Data Collection

To maintain consistency, one data collection team was trained and employed to collect data from November, 1994 through May, 1995. Two members of the team had been employed the previous year and had participated in in-service training and on-site training. The third member of the team responsible for operation of the food service and food behavior of children was a registered dietitian with a master's degree. Training sessions were held for the team and individual portfolios were distributed to each member. Copies of the assessment instruments, standardized procedures, support material, and standard equipment were also disseminated. Travel arrangements, scheduling of child care facilities, and appropriate directories and maps were shared. Support documents are found in Appendix I. Individual name tags were ordered to provide professional identity of the data collection team members.

To promote accountability, a summary check-list of on-site responsibilities was prepared and given to the team for the data collection. Each week a new detailed schedule, instruments, and check-list were given to the team members. Monitoring of the team included telephone conversations and follow-up calls to the child care settings. Each week the team submitted collected data, and the submitted materials were checked for accuracy and completeness.

### Data Analysis

Data were entered into the mainframe computer and analyzed by a professional statistician on the project team. Analyses included frequencies, means, and standard deviations. Significant differences were determined by analysis of variance, multivariate analysis of variance, and Tukey-Kramer procedures. Chi-square analysis and standardized residuals addressed the categorical data.

## III. GOALS, RESULTS, DISCUSSION, NEEDS AND RECOMMENDATIONS

Results of the needs assessment are listed under the 17 goal statements which were developed during Year I of the Nutrition Education and Training Needs Assessment Project. The acceptance level of 70% was designated to measure the performance of the groups. Obviously, in some situations it would be desirable to have a higher level of achievement than 70%. In particular, a 90% level of acceptance would be desirable for adherence to the DGAs.

For all of the attitudinal scales, a Likert-type instrument consisting of a five-point value of desirability was used. The "most-desirable" value was represented by 5, 4 was designated as "desirable," 3 as "neutral," 2 represented "undesirable," and 1 was representative of "most-undesirable" attitude.

### GOAL 1: The Nutrition Knowledge of Children Enables Them to Comprehend the Relationships between Food Habits, Health Status, and Learning.

#### Nutrition Knowledge of Children

Children were tested on the knowledge concepts of healthy food choices, nutrition and health/fitness, self-responsibility for food selection, and nutrition and learning. The instrument was in picture format with a four-item test for younger children (3-year-old) and an eight-item test for older children (5-year-old) children. Four-year-olds were given either the four- or eight-item test according to teacher recommendations. The number of those who took the four-item test was 202 children and 60 children were given the eight-item test.

Table III-1 shows the nutrition knowledge assessment of children for each test. The nutrition assessment is organized by the four nutrition knowledge concepts.

**Table III-1. Nutrition knowledge assessment of children by four-item test and eight-item test**

| | 4-Item Test | | | 8-Item Test | | |
|---|---|---|---|---|---|---|
| Nutrition Knowledge | Number of Items | Mean/S.D. | Percent | Number of Items | Mean/S.D. | Percent |
| Healthy food choices | 1 | 0.82/0.39 | 82 | 2 | 1.70/0.53 | 85 |
| Nutrition and health/fitness | 1 | 0.58/0.49 | 58 | 2 | 1.43/0.56 | 72 |
| Self-responsibility for food selection | 1 | 0.45/0.50 | 45 | 2 | 1.05/0.65 | 53 |
| Nutrition and learning | 1 | 0.62/0.49 | 62 | 2 | 1.72/0.45 | 86 |
| *Total* | *4* | *2.47/0.94* | *62* | *8* | *5.90/1.07* | *74* |



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*Table III-1 indicates that the majority of the children taking the four-item test exceeded* the achievement level of 70% only in the healthy food choice concept. In descending order of achievement, the subscales for the four-item test were: healthy food choices, 82%; nutrition and learning, 62%; nutrition and fitness, 58%; and self-responsibility, 45%. The children taking the eight-item test scored higher than those taking the four-item test in each subscale as well as in total knowledge. The subscales for the eight-item test were: healthy food choices, 85%; nutrition and fitness, 72%; self-responsibility, 53%; and nutrition and learning, 86%. Total knowledge assessment for the eight-item test was 74%.

Data from the previous year's assessment of nutrition knowledge of school age children showed that third grade students correctly answered 65% of the knowledge questions for these same concepts. In that study, third grade students scored highest in the concept of healthy food choices. Other surveys indicate that preschool children are capable of grasping the basic principles of nutrition. In a study by Anliker, Laus, Samonds, and Beal (1992), preschool children were able to identify foods that would help a doll "grow up big and strong." Research by Singleton, Achterberg and Shannon (1992) similarly found children four to seven years of age able to relate food, eating behavior, and health. Murphy (1995) found that the relationship between diet, body fat, and health appeared to be understood by kindergarten students.

The results from the current study also show that preschool children are generally beginning to understand concepts of nutrition and that this knowledge generally increases with age. Children as young as three are receptive and capable of learning about nutrition and its relationship to health. Therefore, nutrition education need not be delayed until any later age.

## Needs and Recommendations

### Needs

Only the concept of healthy food choices received a score of greater than 70% on the four-item test. There was one unacceptable subscale score on the eight-item test. Healthy food choices also received the highest score (82%) for the eight-item test. In addition, the 70% level was achieved on the longer test. More frequent and effective nutrition education should be a priority for the younger age group.

### Recommendations

- Begin nutrition education as early as preschool with an emphasis on basic nutrition principles.
- Include age appropriate experiential experiences with healthful foods.
- Emphasize learning experiences to reinforce concepts of nutrition and health, self-responsibility for food selection, and nutrition and learning for all preschool children.

**GOAL 2: The Nutrition Attitudes of Children Enhance the Development of Healthy Eating Habits.**

## Nutrition Attitudes of Children

The nutrition attitudes of preschool children were assessed by selection of a positive (happy face) or negative (sad frowning face) in response to listening to a researcher read seven short statements. Selection of a frowning face had a value of "1" reflecting less positive attitudes and selection of a happy face had a value of "2" reflecting more positive attitudes.

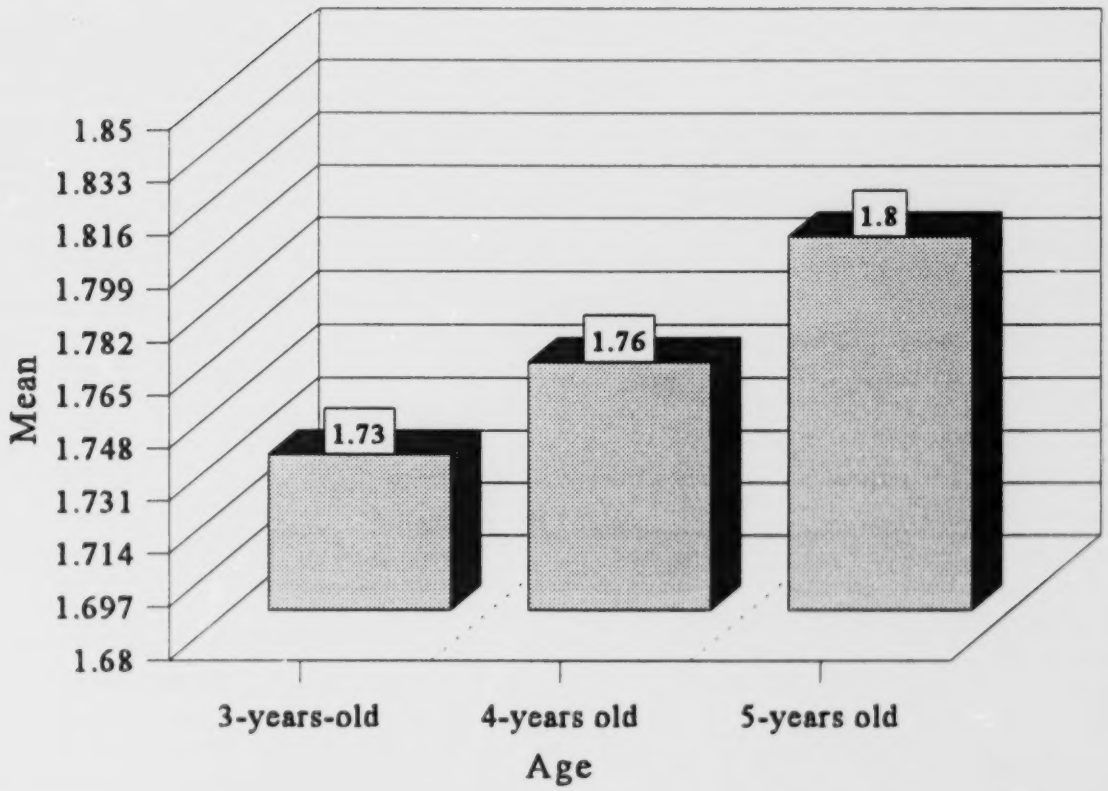
Table III-2 shows the attitude scores of children for each of the statements. The mean is based on a two-point scale.

**Table III-2. Attitudes of children toward nutrition**

| Attitudes | Mean/S.D. |
|---|---|
| 1. I need to eat many kinds of foods. | 1.97/1/16 |
| 2. Walking and running do nothing to help my body. | 1.90/0.30 |
| 3. Snacks can spoil my appetite for meals. | 1.53/0.50 |
| 4. I need to eat food whenever I am hungry. | 1.97/0.17 |
| 5. I like to help prepare food for meals. | 1.92/0.28 |
| 6. My parent/guardian helps me decide what to eat. | 1.90/0.30 |
| 7. Candy and sweets are good for me. | 1.28/0.45 |
| ***Total Attitude Average*** | ***1.76/0.15*** |

Table III-2 indicates that the mean scores expressed by the 352 children for statements 1, 2, 4, 5, and 6 were very positive with a mean score of 1.9 or greater on a 2-point scale. The mean score for statement 3 "snacks can spoil my appetite for meals" was 1.53. The least positive responses were to statement 7. This statement of "candy and sweets are good for me" achieved only a mean of 1.28 on the 2-point scale. The total attitude score of the children surveyed was 1.76 indicating an overall positive attitude to the nutrition concepts tested.

Differences in the total attitude scores were found according to children's age. Figure 4 displays the results of the total assessment of children's attitudes toward nutrition according to age.




## Figure 4. Nutrition attitudes of children by age

Figure 4 shows that attitudes toward nutrition became more positive with age in these children. In this study, attitudes of 5-year-old children were more positive than 3- and 4-year- old children. Attitudes of 4-year-old children were more positive than 3-year-old children. In a previous assessment of Texas school children (Martin, 1994), it was shown however, that total nutrition attitude assessment scores do not continuously increase with age. In that study, 5th grade students scored higher than either 8th or 11th grade students.

### Needs and Recommendations

#### Needs

Mean scores of total attitudes expressed by all preschool children were very positive making this stage of development an opportune time for nutrition education and influence on dietary practices.

## Recommendations

- Day care providers should be encouraged to promote nutrition education in their day care settings.

## GOAL 3: The Nutrition Behavior of Children Is Consistent with the Nutrition Goals of the Dietary Guidelines for Americans

### Nutrition Behavior of Children

The assessment of nutrition behavior of children was completed using food choices based on principles of the DGAs (U.S. Department of Agriculture and U.S. Department of Health and Human Services, 1990). Commercial food models were used to assist the children in selection (Appendix B). Table III-3 reports the food choices of children according to concepts of the DGAs. Mean scores are given with percentages calculated from the maximum number of correct answers.

**Table III-3. Food choices of children**

| Food Choices | Number of Items | 3-year-olds Mean/S.D. | 4-year-olds Mean/S.D. | 5-year-olds Mean/S.D. |
|---|---|---|---|---|
| Fiber | 1 | 0.25/0.44 | 0.27/0.44 | 0.31/0.46 |
| Fat | 2 | 0.31/0.67 | 0.26/0.68 | 0.27/0.73 |
| Sodium | 1 | 0.29/0.45 | 0.23/0.42 | 0.42/0.50 |
| Sugar | 2 | 0.47/0.73 | 0.46/0.73 | 0.49/0.81 |
| ***Total*** | ***6*** | ***2.09/1.10*** | ***1.92/1.24*** | ***2.24/1.49*** |

As indicated in Table III-3, preschool children scored very low in all four dietary guidelines tested in this food choice assessment. The highest scores were achieved in the guideline for limiting consumption of sugar (47%). The children did not score above the mastery level (70%) in any of the DGAs that recommends limiting intake of sodium. All children achieved a percentage in the range of 32% to 37%. (Age 3, 34%; age 4, 32%; and age 5, 37%.)

Children cared for in registered family homes selected significantly more desirable fat food choices (33%) than children who were cared for in day care centers (25%). Significantly more desirable total food choices were made by children in registered family homes (M=2.28; S.D.=1.26) (38%) than those children cared for in day care homes (M=1.93; S.D.=1.24) (32%).

Food consumption data were collected for children. The information was collected according to amount eaten (all, 3/4, 1/2, 1/4, or none) of each CACFP food component served at breakfast or lunch. Table III-4 gives the results of the food consumption.

**Table III-4. Children's consumption of foods served at breakfast and lunch**

| VARIABLE | Amount of Food Intake | | | | |
|---|---|---|---|---|---|
| Meal/Component | None | 1/4 | 1/2 | 3/4 | All |
| | Percent of Children | | | | |
| ***Breakfast*** | | | | | |
| Milk | 22 | 15 | 6 | 6 | 51 |
| Fruit/Vegetable | 15 | 9 | 12 | 3 | 62 |
| Bread | 14 | 14 | 10 | 9 | 53 |
| ***Lunch*** | | | | | |
| Milk | 15 | 4 | 11 | 5 | 65 |
| Bread | 14 | 8 | 11 | 8 | 59 |
| Meat | 10 | 6 | 12 | 10 | 62 |
| Vegetable | 7 | 7 | 25 | 13 | 48 |

This table shows that a full serving of milk was consumed by 51% of the 78 children observed at breakfast and 65% of the 225 children observed at lunch. However, 22% and 15% of the children refused milk at breakfast and lunch respectively. A complete serving from the bread/bread alternate group was consumed by 53% of the children at breakfast and 59% at lunch but refused by 14% at breakfast and lunch. Meat/meat alternate portions were totally consumed by 62% and refused by 10%.

## Needs and Recommendations

### Needs

Children did not score above the mastery level in any DGA variable for food choices. In addition, observed food intake revealed a refusal rate of greater than 10% for many CACFP meal components.

### Recommendations

- Include nutrition education within child care settings to familiarize them with a variety of foods.
- Encourage introduction of new food items in the day care menu.
- Encourage frequent modification of menus to address children's preferences.

- Involve children in meal planning and preparation.
- Include ethnic and local recipes for children.
- Develop methods to help child care food service personnel monitor food quality and acceptance in their facility.

**GOAL 4: The Nutrition Knowledge, Attitudes, and Behavior of Children Have a Positive Effect on Their Learning, Health, and Physical Fitness.**

## Background

The parameters used for assessment of health included prevalence of obesity as a risk factor for later life, dental status, and immunization status. The first two have some relationship to nutrition, while the third relates to vulnerability to infectious disease.

As mentioned previously, obesity was defined by determination of actual weight and height in relation to anticipated weight for measured height as predicted from the Harvard growth charts. An actual weight greater than 120% of anticipated weight for height was defined as index of obesity. While measurement of height is moderately difficult to standardize in the age group studied, the use of percentiles for comparison of heights and weights provides some flexibility.

Dental status was determined by oral examination and was recorded as normal, marginal, or poor in relation to general condition, presence/absence of dental caries, and presence/absence of restored teeth.

Immunization status was self-reported by parents. In the age group of one to four years, children should have had three Diphtheria/Pertussis/Tetanus (DPT) injections, three oral polio vaccine administrations, and one Measles/Mumps/Rubella (MMR) injection. At age four, they should have a booster for each of the above immunizations. The above schedule is the current recommendation of the Texas Department of Health.

The demography of the specific age groups reasonably parallels that of the composite group. The number of Asian/Pacific Islanders appears low in proportion to representation in the general population. This same disproportion was noted in the previous study of 3rd, 5th, 8th and 11th graders (Martin, 1994). This might reflect sampling error or it could be a cultural phenomenon in which Asian/Pacific Islanders do not utilize day care resources to the extent that other ethnic subgroups do. The 5-year-old group is approximately one-half the number of the other two groups, but parallels the gender and ethnicity distribution of the other two.

## Health Indices

### Obesity

As defined above, obesity is determined by dividing the observed weight by the expected weight for observed height plotted on the Harvard growth charts. A range of 80-120 is considered normal (< 2 S.D. from 50th percentile) and a result > 120 is judged "obese." There were 343 heights and weights in the total group of 358 subjects. Thirty-four of the children (9.9%) were obese. Obesity was prevalent in 10.8% of the 3-year-olds, 10.6% of the 4-year-olds, and 6.9% of the 5-year-olds.

In the previous study of 3rd, 5th, 8th, and 11th grade students, the prevalence of obesity as determined by the method described above was consistently at 23-25% with no significant differences between age groups, gender groups, or ethnic groups. The prevalence of 7-11% obesity in the preschool group appears significantly lower than the 23-25% in older children and adolescents. This would suggest that the prevalence of obesity increases in the early school years. It therefore might be helpful to determine if there are differences in knowledge, attitudes, and practices between ages five and nine years. The increase in obesity might be due in part to the more structured school environment of the older children, where less physical activity is allowed throughout the day than in the preschool setting.

The amount of children's viewing television was also reported. The parents indicated that children watched from 75 to 96 minutes per day. Less physical activity can contribute to a tendency to be obese.

### Dental Condition

In the cohort of 358 children, 95% of all age groups were reported as having "average" to "excellent" dental condition, 2% were judged "poor," and 3% were not reported. There were no differences between age groups, gender groups, nor ethnic groups. This appears inconsistent with the findings of Pestano-Binghay, Resis, and Walters (1993) who reported that "anemia, underweight, and dental caries were identified as the greatest areas of concern with regard to children's health." That study however was conducted on recipients of WIC resources which requires some level of indigency.

### Immunization Status

Table III-5 reveals data for measles (rubeola), mumps, and rubella which were reported separately, but combined in the table because MMR is generally given as a single injection and the reports of the three vaccines were very similar.

**Table III-5. Children's immunization status**

| Children | DPT/Td | | Polio | | MMR | |
|---|---|---|---|---|---|---|
| | IM | NO | IM | NO | IM | NO |
| | Percent of Children | | | | | |
| Three-Year-Olds | 93 | 3 | 93 | 2 | 90 | 4 |
| Four-Year-Olds | 90 | 2 | 90 | 2 | 86 | 2 |
| Five-Year-Olds | 93 | 5 | 93 | 4 | 91 | 3 |
| ***Total*** | ***97*** | ***0*** | ***97*** | ***3*** | ***92*** | ***3*** |

Table III-5 indicates improvement in immunization status by age. This may reflect the fact that children are required by school and preschool to produce proof of immunization. It remains a matter for concern that some 10% of preschool children are susceptible to measles, mumps, or rubella and 7 to 10% are vulnerable to diphtheria, pertussis, tetanus, and polio. Children in day care should be, at least in theory, better immunized by virtue of the requirements of the child care centers than are children cared for at home where there is no requirement for immunization until school entry. The vulnerability here is one which is amenable to rapid solution by requiring that all children in licensed child care be appropriately immunized as a portion of the criteria for licensure.

## Summary

The outstanding feature of this year's study of children in child care settings is that the prevalence of obesity appears to be significantly less than in last year's study of children and adolescents in grades 3-11. The period of years six through nine might be examined to determine if there are changes in knowledge, attitudes, or practices which predispose toward obesity. The foods presented in child care settings are likely less flexible than are the choices possible in a school cafeteria/vending area. Likewise, the children in child care are less mobile in the community in terms of other sources of food. Less physical activity in the more structured elementary and high school setting might also play a role.

## Recommendations

- Immunization of children should be enforced to prevent their susceptibility to measles, mumps, rubella, diphtheria, pertussis, tetanus, and polio.
- Physical activity should be promoted in order to become integrated into the lifestyles and daily habits of children.

## GOAL 5: The Nutrition Knowledge of Parents Enables Them to Comprehend the Relationships between Food Habits, Health Status, and Learning.

### Nutrition Knowledge of Parents

Parents were tested on the same four knowledge concepts as their children in addition to three more concepts: nutritional needs, DGAs, and nutritional life/consumer skills. A total of 14 multiple-choice items was administered to 610 parents.

The achievement level for parents of children is displayed in Table III-6.

**Table III-6. Nutrition knowledge of parents**

| Nutrition Knowledge | Number of Items | Percent | Mean/S.D. |
|---|---|---|---|
| Nutrition and learning | 2 | 60.0 | 1.20/0.71 |
| Nutritional needs | 2 | 82.5 | 1/65/0.59 |
| healthy food choices | 2 | 29.0 | .58/0.68 |
| DGAs | 2 | 59.5 | 1.19/0.71 |
| Nutritional life/consumer skills | 2 | 74.0 | 1.48/0.64 |
| Nutrition and health/fitness | 2 | 43.5 | .87/0.76 |
| Self-responsibility for food selection | 2 | 87.0 | 1.74/0.48 |
| ***Total*** | ***14*** | ***61.2*** | ***8.57/2.85*** |

Table III-6 shows that an achievement level of 61.2% on the total nutrition knowledge was achieved by parents. In descending order of achievement, the subscales were: self-responsibility for food selection, 87.0%; nutritional needs, 82.5%; nutritional life/consumer skills, 74.0%; nutrition and learning, 30.8%; DGAs, 59.5%; nutrition and health/fitness, 43.5%; and healthy food choices, 29.0%.

### Needs and Recommendations

#### Needs

Parents of preschool children had an overall achievement level below 70% on nutrition knowledge.

#### Recommendations

- Educational interventions should be planned to overcome the nutrition knowledge deficiencies of parents.

- Special attention should be paid to the low knowledge level in the areas of healthy food choices and nutrition and health/fitness.

**GOAL 6: The Nutrition Attitudes of Parents Enhance the Development of Healthy Eating Habits.**

## Nutrition Attitudes of Parents

The nutrition attitudes assessment of all parents included six subscales, developed on a 5-point Likert-type scale. Value points on the scale were represented by 5 as "most desirable;" 4, "desirable;" 3, "neutral;" 2, "undesirable;" and 1, "most undesirable."

Table III-7 depicts the results of the assessment of the parents' attitudes toward nutrition. The total number of parents responding was 610.

**Table III-7. Nutrition attitudes of parents**

| Attitudes | Number of Items | Mean/S.D. |
|---|---|---|
| Nutrition and learning | 2 | 4.73/0.42 |
| Self-Responsibility for food selection | 4 | 3.38/0.73 |
| DGAs | 2 | 4.66/0.44 |
| Healthy food choices | 1 | 4/50/0.71 |
| Nutrition and health/fitness | 2 | 4/62/0.54 |
| *Total* | *12* | *4.17/0.36* |

Table III-7 indicates that the total mean score of parents was 4.17 on a 5.0 scale. The most positive attitude held by parents was toward nutrition and learning (4.73). Their least positive attitude was toward self-responsibility for food selection (3.38).

## Needs and Recommendations

No needs appear critical since all of the attitude subscales were positive. It would be interesting to assess the attitudes again when the knowledge level of the parents has improved.

**GOAL 7: The Nutrition Behavior of Parents Is Consistent with the Nutrition Goals of the Dietary Guidelines for Americans and Serves as a Model for Children's Behavior.**

## Nutrition Behavior of Parents

### Food Choices of Parents

Parental food choices, based on the DGAs, were assessed twice with the identical instrument. Parents were to respond to the 12 multiple-choice item assessment with the assumption that their children were present, and again as if their children were not present. Table III-8 includes the parents' food choices assuming that their children were present, and children were not present.

**Table III-8. Food choice of parents in children's presence and absence**

| | | Child Present | | Child Absent | |
|---|---|---|---|---|---|
| DGAs Variables | Number of Items | Mean/S.D. | Percent | Mean/S.D. | Percent |
| Sugar | 2 | 1.50/0.59 | 75 | 1.11/0.66 | 56 |
| Fat | 2 | .80/0.72 | 40 | .63/0.69 | 32 |
| Fiber | 1 | .51/0.50 | 51 | .52/0.50 | 52 |
| Alcohol | 2 | 1.66/0.53 | 83 | 1.78/0.49 | 89 |
| Sodium | 3 | 1.11/0.85 | 37 | .98/0.82 | 33 |
| Variety | 2 | 1.27/0.65 | 64 | .94/0.59 | 47 |
| *Total* | *12* | *6.82/2.19* | *57* | *5.94/2.14* | *50* |

We may conclude from the results found in Table III-8 that parents made appropriate food choices below the acceptability level of 70%, except in two areas when their children were present. Exceptions to the 70% level of acceptability were for the subscale of alcoholic beverages (83.0%) and sugar (75.0%). Selecting high-sodium foods was low for all parents (37.0%); parents would be likely to limit their selection of alcoholic beverages in the presence of their child 83.0% of the time.

The food choices of parents in the absence of their children were less desirable (49.5%) than in their presence (56.8%). Obviously this level of desirability does not meet the acceptability level of 70%. The only level of food choices that was desirable was the selection of alcoholic beverages. All other subscales of the DGAs were below the standard. Fatty foods accounted for the lowest level of desirability in food choices with 31.5%.

## Needs and Recommendations

### Needs

The food practices of parents relative to the DGAs (children present: total mean, 56.8%; children not present: total mean, 49.5%) are below the 70% level. Parents serve as models; the impact that their choices make on their lives as well as their children's eating behaviors needs to be recognized.

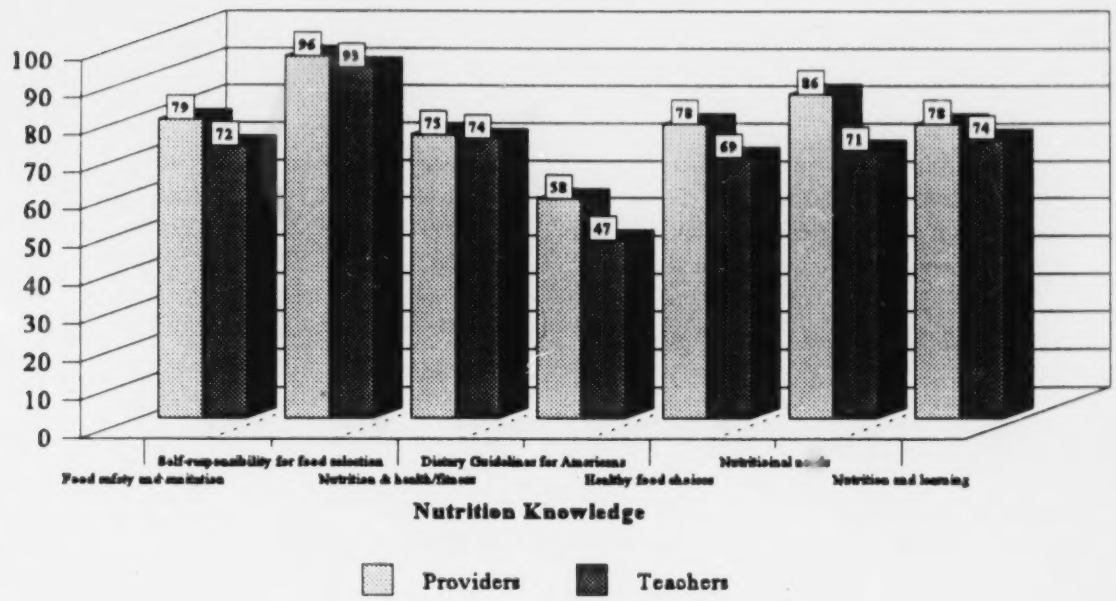
### Recommendations

- Innovative educational programming should be offered to parents in an attempt to raise the awareness of the importance of the DGAs.
- The compliance of parents with the DGAs needs to be improved when the children are present in food choices relating to fat, fiber, sodium, and variety; and when the children are not present in food choices regarding sugar, fat, fiber, sodium, and variety.

**GOAL 8: Educators' Nutrition Knowledge Enables Them to Effectively Communicate Nutrition Concepts to Children.**

## Nutrition Knowledge of Teachers and Providers

Teachers and providers were tested on the same concepts as the parents with one exception. Teachers were assessed on seven subscales; the additional subscale was on food safety and sanitation. The results of the assessment are displayed in Figure 5. Educators of these children are defined as providers in registered family homes and group day care homes. Teachers are identified as educators in day care centers. In some instances, data solicited from teachers and providers varied in the number of items because the providers had additional responsibilities besides teaching. To keep cognizant of getting questionnaires returned from all of the samples in the study, the questionnaire for the providers had to also address the administrative tasks and food service aspects.




## Figure 5. Nutrition knowledge of teachers and providers

Figure 5 indicates that all teachers correctly answered 76.0% of the questions which is above the minimum level of acceptability (70.0). The providers correctly answered 76.6% which also meets the acceptance level. Almost one-half (49.3%) of the teachers had studied nutrition in high school and approximately one-fifth (19.2%) had studied nutrition in college.

### How Nutrition Concepts Are Taught as Reported by Teachers

Teachers reported that the main curriculum guide they used was one which was self-developed. Teachers identified The Heart Treasure Chest (American Heart Association, 1984) as the professionally prepared curriculum guide used most. Teachers made provisions for children to be involved in helping with the food preparation (75.3%), tasting parties (45.2%), and food-related activities in the eating area (45.8%).

Nutrition activities available to the children were specified by the 73 teachers and 88 providers and are reported in Table III-9.

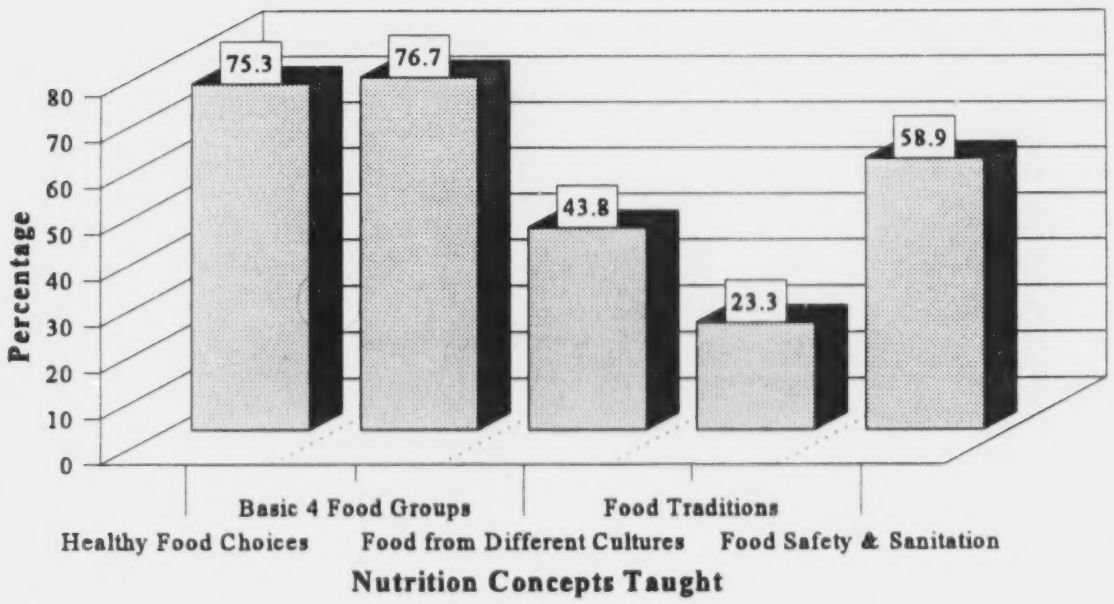
**Table III-9. Children's nutrition education activities as reported by teachers**

| Nutrition Education Activities | Teachers Percent | Providers Percent |
|---|---|---|
| I sponsor a tasting party for the children. | 45.2 | 65.9 |
| I eat meals regularly with the children in their eating area. | 30.1 | 76.1 |
| I teach nutrition to the children. | 75.3 | 84.9 |
| I enforce the washing of children's hands before eating food. | 93.2 | 57.1 |
| I enforce the washing of children's hands after using the toilet. | 75.3 | -- |
| Eating area is cheerful. | 70.4 | 100.0 |

As shown in Table III-9, three-fourths of the teachers reported that the children helped in preparing food. Less than one-half of the teachers sponsored a tasting party for the children. Less than one-third of the teachers (30.1%) ate meals regularly with the children. In contrast, about two-thirds (65.9%) of the providers sponsored tasting parties for the children. Also, over three-fourths (76.1%) of the providers ate meals regularly with the children.

## Nutrition Concepts Taught

Figure 6 displays the nutrition concepts taught by the teachers.




## Figure 6. Nutrition concepts taught as reported by teachers

As noted in Figure 6, the concept taught most frequently by teachers was the basic four food groups (76.7%) followed by healthy food choices (75.3%). The concepts seldom taught by teachers were food from different cultures (43.8%) and food traditions (23.3%).

### Frequency of Nutrition Education

Teachers reported frequency and amount of time nutrition was taught.

Figure 7 illustrates the frequency of time nutrition was taught to the children as reported by the teachers.

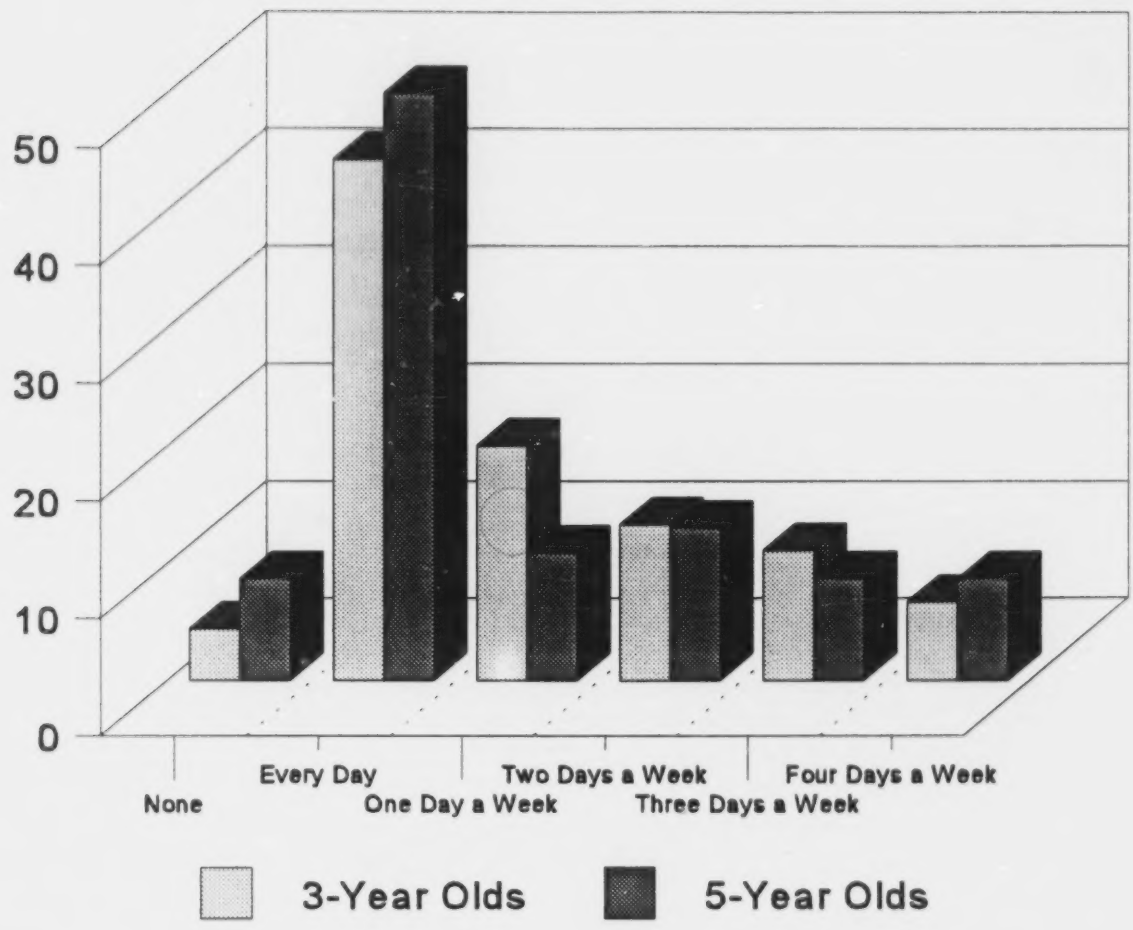
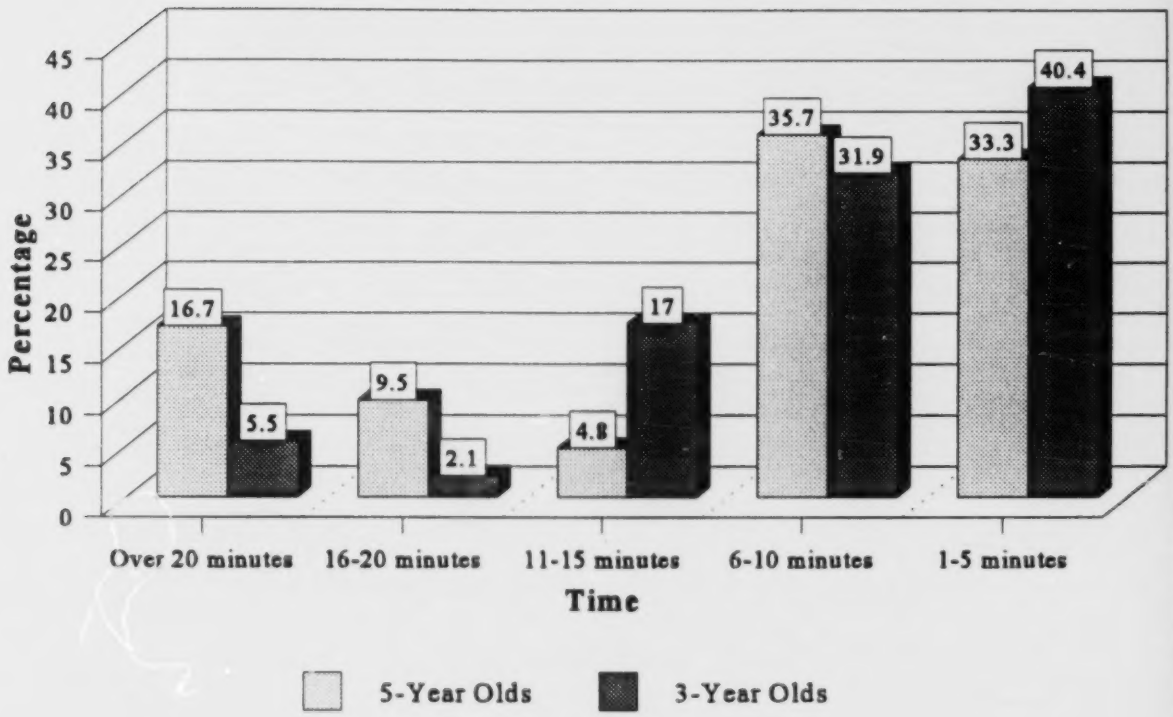



**Figure 7. Frequency of time nutrition is taught at childcare sites as reported by teachers**

Figure 7 shows that over 40% of the teachers indicated that they taught nutrition daily to 3-year-old children; one-half of the teachers responded that they taught nutrition daily to 5-year-old children. Nutrition was not taught by 4.4% of the teachers to 3-year-old children, whereas 8.7% of the teachers indicated that they did not teach nutrition to the 5-year-old children.

The total minutes per week that nutrition was taught is reported in Figure 8.




## Figure 8. Total number of minutes nutrition is taught per week as reported by teachers

Three-year-old children were likely to have 1 to 5 minutes (40.4%) of nutrition education per week; 31.9% of the teachers reported that nutrition education is taught 6 to 10 minutes weekly. Five-year-old children were involved in nutrition education 1 to 5 minutes per week (33.3%) and 35.7% of teachers reported 6 to 10 minutes was used weekly to teach nutrition.

### Needs and Recommendations

#### Needs

Approximately one-third of the three- to five-year-old children are engaged in five minutes or less of nutrition education per week, indicating a need for more nutrition education.

#### Recommendations

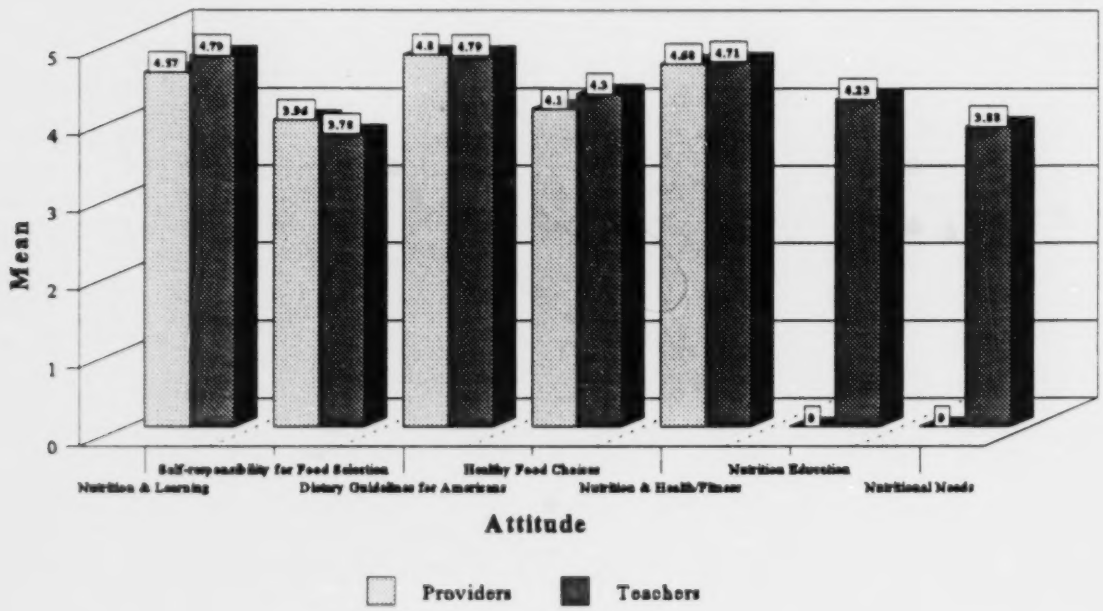
- Promote additional quantity and quality of nutrition education through hands-on activities,

mealtime as a laboratory for critical thinking, and various strategies including ethnic foods and food acceptability.

**GOAL 9: Educators' Nutrition Attitudes Enable Them to Communicate Positive Nutrition Attitudes to Children**

## Nutrition Attitudes of Teachers and Providers

Teachers responded to 12 statements on attitudes toward nutrition. Figure 9 contains the results of the attitude assessment of the 73 teachers and 160 providers.




## Figure 9. Nutrition attitudes of teachers and providers

Figure 9 shows that teachers and providers have positive attitudes toward nutrition. The overall mean for this assessment was 4.36 for the teachers and 4.39 for the providers on a 5.00 scale. Since all of the attitudes of the teachers and providers were positive, no needs were identified.

## Needs and Recommendations

### Recommendations

- Based on the positive attitudes of the educators, build on this factor to expand the opportunities for nutrition education and the crucial role that teachers have in the process.

**GOAL 10: Educators Model Acceptable Nutrition Behaviors to Children.**

## Nutrition Behaviors of Teachers and Providers

### Food Choices of Teachers and Providers

Teachers responded to a 12-item assessment about their food choices. Six subscales with multiple-choice questions provided the structure for the instrument. Teachers responded to the instrument twice: once as if the children were present; second, they selected food items from the identical instrument as if the children were not present.

Figure 10 portrays the responses of the 73 teachers in the case of children assumed present and assumed not present.

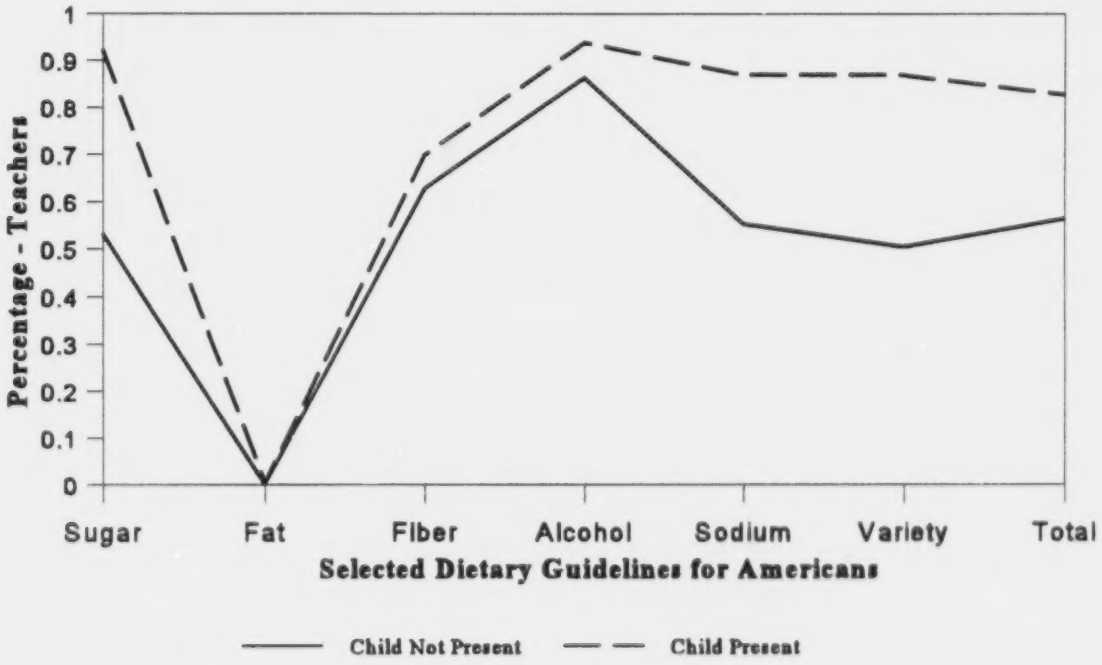
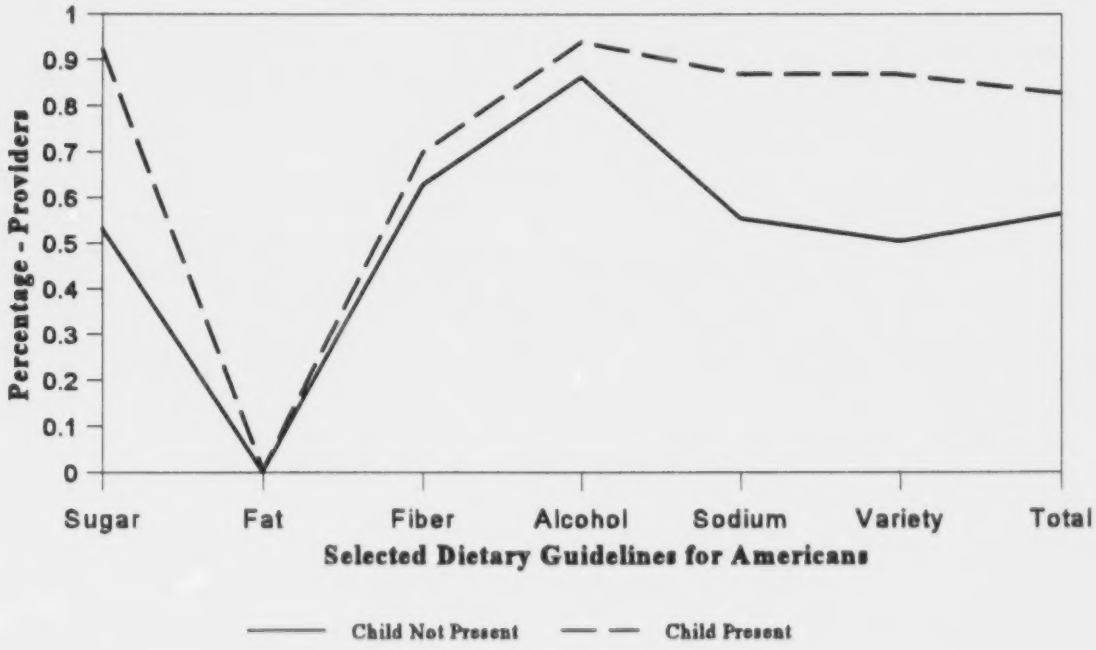



**Figure 10. Food choices of teachers with children present and children not present**

Figure 10 shows that teachers made consistently less desirable food choices when the children were not present. All of the food choices were below the acceptable level of 70% except alcohol (86.5%).

Figure 11 portrays the responses of 88 providers in the case of children assumed present and assumed not present.




## Figure 11. Food choices of providers with children present and children not present

Figure 11 shows that the overall mean was 56.5% which fails to meet the 70% level of acceptability. Providers selected more desirable food choices when children were assumed present (77.3%) than food choices made when children were assumed not present (62.3%).

### Needs and Recommendations

#### Needs

Teachers made food choices based on the DGAs, without children present (56.5%), which did not meet the acceptability level of 70%. Food choices made by providers when children were assumed absent (62.3%) did not meet the standard of 70%.

#### Recommendations

- Nutrition education related to the DGAs should be planned and implemented for teachers and providers.

- The importance of healthy food choices on the lifestyles of educators (teachers and providers) and those of their clientele needs to be emphasized.

**GOAL 11: Educators Coordinate Learning and Mealtime Experiences in Teaching Nutrition to Children.**

## Coordination of Nutrition Education

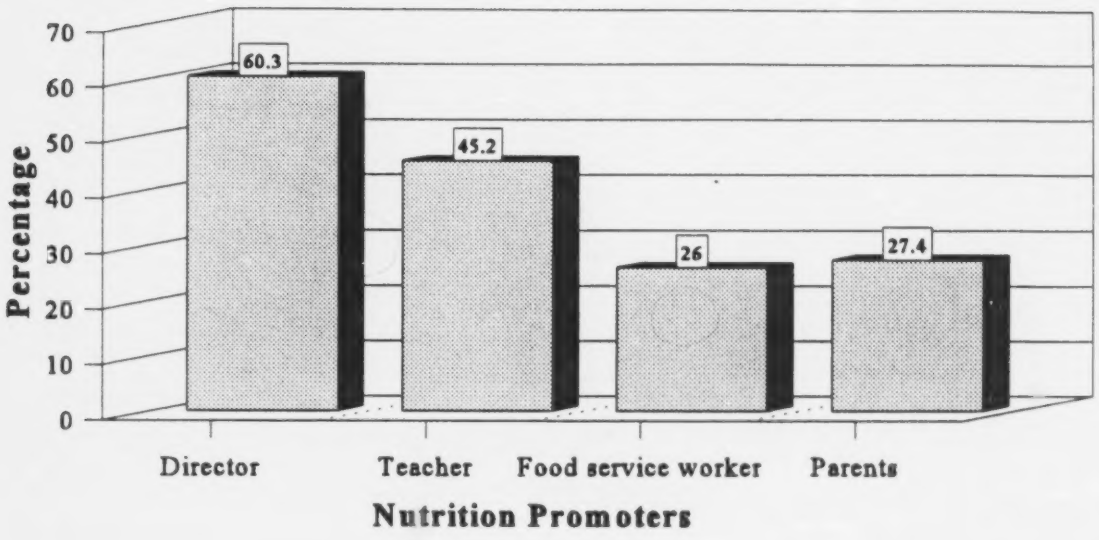
Teachers were asked to identify the individual who serves as coordinator of nutrition education for children. Table III-10 shows the responses of the 73 teachers.

**Table III-10. Individual who coordinates nutrition services as reported by teachers**

| Nutrition Coordinators | Teachers Percent |
|---|---|
| Child care director/administrator | 37.0 |
| Dietitian | 23.9 |
| Food service director | 30.4 |
| Teacher | 2.2 |

Table III-10 indicates that teachers identified the child care director and/or administrator as the likely nutrition education coordinator (37.0%).

Figure 12 shows those individuals who promote nutrition education in the day care centers.




## Figure 12. Individuals working to promote nutrition education as reported by teachers

Figure 12 shows that when teachers reported the individuals who worked to promote nutrition education, 60.3% of the teachers identified that individual as the day care center director.

Teachers were asked to name the people they would most likely involve in teaching nutrition education to preschool children. The persons named, in order of frequency, were: (1) Aid to Families with Dependent Children representative, (2) home economist, and (3) public health specialist.

Various problems in teaching nutrition are reported by 27 teachers and 88 providers in Table III-11. This part of the questionnaire was administered only by mail to teachers and providers.

**Table III-11. Problems in teaching nutrition as reported by teachers and providers**

| Problems in teaching nutrition | Teachers Percent | Providers Percent |
|---|---|---|
| lack of interest among parents, directors and caregivers | 44.4 | 63.6 |
| Lack of time to plan, coordinate, implement | 66.7 | 48.9 |
| Insufficient funds | 59.3 | 69.3 |
| Full calendar | 22.2 | 40.9 |
| Messy eating style | 18.5 | 18.2 |
| Caregivers do not eat with children | 11.1 | 19.3 |
| Shortage of education materials | 44.4 | 46.6 |
| Lack of interest from cook | 25.9 | |

Table III-11 shows that two-thirds of the teachers identified lack of time to plan, coordinate, and implement nutrition education as a major problem. Lack of funds was reported by 69.3% of the providers.

## Needs and Recommendations

### Needs

There appears to be some diversity in identifying a nutrition coordinator.

A relative weak response was given for the identification of individuals working to promote nutrition.

Both teachers and providers indicated insufficient funds as a common problem in teaching nutrition. Other needed resources include education materials, time, and interest of parents, directors, and caregivers.

### Recommendations

- Assist teachers in clarifying the nutrition coordinator in order to increase effectiveness of support and cooperation of a team effort.
- Enlist the involvement of staff members and administrators in promoting nutrition education.

- Provide in-service training and/or support materials for increasing interest of parents, directors, and caregivers; managing time to plan and implement nutrition education; and maximizing low-cost quality education materials.

**GOAL 12: The Nutrition Knowledge of Food Service Personnel Enables Them to Comprehend the Relationships between Food Habits and Health Status.**

## Knowledge of Food Service Personnel and Providers

Food service workers were tested on knowledge of seven nutrition concepts including: healthy food choices, nutrition and health/fitness, self-responsibility for food selection, nutrition and learning, nutritional needs, DGAs, and food safety and sanitation. Table III-12 presents the mean and standard deviations of correct answers given by 55 food service personnel and 133 providers to this knowledge assessment questionnaire.

**Table III-12. Nutrition knowledge of food service personnel and providers**

| | *Food Service Personnel* | | | *Providers* | | |
|---|---|---|---|---|---|---|
| Nutrition Concepts | Number of Items | Mean/S.D. | Percent | Number of Items | Mean/S.D. | Percent |
| Healthy food choices | 2 | 1.59/0.53 | 80 | 2 | 1.55/0.61 | 78 |
| Nutrition and health fitness | 2 | 1.42/0.57 | 71 | 3 | 2.25/0.73 | 75 |
| Self-responsibility for food selection | 1 | 0.96/0.19 | 96 | 1 | 0.96/0.21 | 96 |
| Nutrition and learning | 1 | 0.81/0.40 | 81 | 1 | 0.78/0.42 | 78 |
| Nutritional needs | 2 | 1.82/0.39 | 91 | 1 | 0.86/0.35 | 86 |
| Dietary Guidelines for Americans | 1 | 0.78/0.42 | 78 | 1 | 0.58/0.49 | 58 |
| Food safety and sanitation | 3 | 2.49/0.66 | 83 | 3 | 2.37/0.70 | 79 |
| ***Total*** | ***13*** | ***10.65/1.84*** | ***82*** | ***12*** | ***9.19/1.78*** | ***77*** |

Table III-12 shows that food service personnel received the highest score on the concept of self-responsibility for food selection. The lowest knowledge score was on nutrition and health/fitness. Total knowledge score for the food service personnel was 10.65 points out of a possible 13 questions, or 82%. Food service personnel achieved the acceptance level of 70% on all tested concepts. Providers achieved

their highest score in the area of self-responsibility for food selection (96%), their lowest score was for DGAs. The overall mean was 77%.

## Needs and Recommendations

### Needs

Since all of the means exceeded the 70% acceptance level, no needs were identified. However, the following recommendations are made.

### Recommendations

- The knowledge score of food service personnel in the area of nutrition and health/fitness was marginal at 71%. Therefore, training targeted to these individuals should be in the area of influence that nutrition has on both the current health and fitness of preschool children as well as the prevention of disease throughout life.

- Training should be included to assist food service personnel in child care settings to apply current knowledge in their own food service facilities.

**GOAL 13: The Nutrition Attitudes of Food Service Personnel Promote the Development of Healthy Eating Habits in Children.**

## Attitudes of Food Service Personnel

Table III-13 presents the mean and standard deviation of responses of 55 food service personnel and 160 providers to the attitude assessment instrument.

**Table III-13. Nutrition attitudes of food service personnel and providers**

| | | *Food Service Personnel* | *Providers* |
|---|---|---|---|
| Attitudes | Number of Items | Mean/S.D. | Mean/S.D. |
| Healthy food choices | 3 | 3.81/0.65 | 4.10/0.72 |
| Nutrition and health/fitness | 4 | 4.57/0.50 | 4.68/0.54 |
| Nutrition and learning | 3 | 4.68/0.33 | 4.57/0.43 |
| Dietary Guidelines for Americans | 2 | 4.80/0.31 | 4.80/0.34 |
| *Total* | *12* | *4.43/0.30* | *4.39/0.34* |

Table III-13 shows a positive attitude of food service personnel and providers toward nutrition.

A total attitude score of 4.45/5.0 reflects an overall positive attitude of food service personnel to concepts of nutrition. Providers also demonstrated a positive attitude toward nutrition (4.39/5.0).

## Needs and Recommendations

Since all of the means were over 3.0 on a 5.0 scale, indicating positive nutrition attitudes, no needs or recommendations are currently identified.

## GOAL 14: The Management Knowledge of Food Service Personnel Will Allow Them to Maximize the Available Resources of the Food Service Operation.

### Management Knowledge of Food Service Personnel

Food service personnel in child care settings were tested in areas of management including concepts of menu planning, food production, food service, food acceptability, and food safety and sanitation. Table III-14 presents the mean and standard deviations of correct answers to this knowledge assessment questionnaire completed by the 55 food service personnel.

**Table III-14. Management knowledge of food service personnel**

| Management Concepts | Number of Items | Mean/S.D. | Percent |
|---|---|---|---|
| Menu planing | 2 | 1.27/0.59 | 64 |
| Food production | 2 | 1/47/0.57 | 74 |
| Food service | 1 | 0.16/0.37 | 16 |
| Food acceptability | 1 | 0.84/0.37 | 84 |
| Food safety and sanitation | 3 | 2.49/0.66 | 83 |
| ***Total*** | ***9*** | ***6.13/1.45*** | ***68*** |

It is apparent from Table III-14 that the management subscales of food production, food acceptability, and sanitation and food safety exceeded the 70% acceptance level with scores of 74%, 84%, and 83% respectively. The concepts of menu planning and food service, however, scored an unacceptable 64% and 16% respectively. The total knowledge assessment score for the management concepts (68%) was also below the acceptance level.

### Needs and Recommendations

#### Needs

Total management knowledge scores of food service personnel was below the 70% acceptance level.

**Recommendations**

- Training needs to be enhanced in all areas of food service management with particular emphasis in the areas of menu planning and food service.

**GOAL 15: Food Service Personnel Will Plan, Procure, Prepare and Serve Nutritious, Good Tasting Meals and Snacks which Meet the Appropriate USDA Meal Pattern and the DGAs.**

## Behavior of Food Service Personnel and Providers

In order to assess actual behavior of child care food service personnel and providers to determine their ability to translate nutrition and management knowledge and attitudes into practice, two different menu assessments were made. First, the meal observed by the project evaluation team was assessed for compliance with the USDA's CACFP guidelines. Secondly, child care facilities were asked to submit one week of written menus for assessment of nutrient content.

The CACFP meal pattern requires that certain food components be served at breakfast, lunch, and snack times. The pattern also requires that a minimum portion be served. Support documents are found in Appendix F. Table III-15 shows assessment of the observed meal time according to CACFP guidelines.

## Meal Compliance

### CACFP Guidelines

Menus of 30 breakfasts and 58 lunches observed on-site were analyzed according to the CACFP requirements. The findings are displayed in Table III-15.

**Table III-15. Menu analyses of breakfast and lunch according to the CACFP requirements**

| Meal/Component | Food Served Percent | Food Qualifies Percent |
|---|---|---|
| ***Breakfast*** | | |
| Milk | 100 | 79 |
| Bread or Bread Alternate | 93 | 89 |
| Fruit/Vegetable | 93 | 79 |
| ***Lunch*** | | |
| Milk | 90 | 70 |
| Meat or Meat Alternate | 100 | 80 |
| Bread or Bread Alternate | 95 | 89 |
| 1st Fruit/Vegetable | 93 | 82 |
| 2nd Fruit/Vegetable | 93 | 79 |

Table III-15 shows that milk served at breakfast and meat/meat alternates at lunch were served with the greatest consistency at 100% of the meals. These foods failed to qualify 21% and 20% of the time, however, primarily due to insufficient serving size. Bread/bread alternates were served 93% of the time at breakfast and 95% of the time at lunch with those items qualifying 89% of the time. Milk served at lunch was served only 90% of the time and did not qualify 30% of the time. CACFP requires 100% compliance for reimbursement. No food component qualified 100% in the mean assessment of these child care menus.

## Nutrient Analyses of Meals

A second method of assessment involved computerized analysis of one week menus submitted by the day care programs. Nutrient values were calculated for the same meal as observation, and a weekly mean was determined.

Table III-16 provides the mean and standard deviations for nutrients planned for 30 breakfasts, 58 lunches, and 9 snacks.

**Table III-16. Mean and standard deviations of nutrients in breakfast, lunch, and snack menus**

| | *Breakfast* | *Lunch* | *Snack* |
|---|---|---|---|
| Meal/Nutrient | Mean/S.D. | Mean/S.D. | Mean/S.D. |
| Kcal | 360.91/270.51 | 506.65/110.19 | 216.44/50.89 |
| Protein (g) | 12.60/6.87 | 26.33/6.92 | 6.65/3.67 |
| Iron (mg) | 2.40/1.53 | 3.22/0.92 | 1.56/0.78 |
| Vitamin A (IU) | 219.24/108.63 | 551.38/253.56 | 228.24/235.39 |
| Vitamin C (mg) | 26.51/19.52 | 23.21/14.62 | 25.62/19.77 |
| Calcium (mg) | 290.31/52.97 | 348.72/94.56 | 155.89/126.65 |
| Total Fat (g) | 8.74/4.16 | 19.52/5.28 | 6.86/2.69 |
| Saturated fat (g) | 3.65/1.47 | 6.70/1.53 | 2.68/1.62 |
| Sodium (mg) | 368.45/197.24 | 864.34/284.12 | 271.20/107.30 |
| Total Sugars (g) | 26.13/6.88 | 18.72/5.08 | 114.23/4.61 |
| Fiber (g) | 2.10/0.97 | 4.79/1.47 | 1.16/0.45 |

## Comparison of Nutrients with RDAs

Of particular interest is a comparison of the nutrients provided by these child care menus with the Recommended Dietary Allowances (RDA) for both three- and five-year-olds (National Research Council, 1989). Child care licensing standards generally require that children in full day programs be provided with good sources of iron and Vitamin C every day; a good source of Vitamin A every other day; and enough foods from the different food groups to supply at least 50% of the RDA for energy (Day Care Center Minimum Standards and Guidelines, 1995). A recent position statement from the American Dietetic Association (American Dietetic Association, 1993) states that any child in a full-day program should receive foods that meet at least one-half to two-thirds of the child's daily nutrition needs.

Table III-17 compares nutrient values with the 50% and 67% level of RDA for three-year-olds, and Table III-18 compares menu nutrient values with the 50% and 67% level of RDA for five-year-olds.

**Table III-17. Mean comparison of daily menu nutrients with RDA for 3-year-olds**

| Nutrient | Mean[1] | 50% of RDA | 67% of RDA |
|---|---|---|---|
| Kcal | 334.17 | 650.0 | 871.0 |
| Protein (g) | 45.58 | 8.0 | 10.7 |
| Iron (mg) | 12.27 | 5.0 | 6.7 |
| Vitamin A (IU) | 1058.86 | 200.0 | 268.0 |
| Vitamin C (mg) | 75.34 | 20.0 | 26.8 |
| Calcium (mg) | 794.92 | 400.0 | 536.0 |

[1] Calculated as the sum of the means for breakfast, lunch and snack reported in Table II-16.

**Table III-18. Mean comparison of daily menu nutrients with RDA for 5-year-olds**

| Nutrient | Mean[1] | 50% of RDA | 67% of RDA |
|---|---|---|---|
| Kcal | 10.84 | 900.0 | 1206.0 |
| Protein (g) | 45.58 | 12.0 | 16.1 |
| Iron (mg) | 12.27 | 5.0 | 6.7 |
| Vitamin A (IU) | 1058.86 | 250.0 | 335.0 |
| Vitamin C (mg) | 75.34 | 22.5 | 30.2 |
| Calcium (mg) | 794.92 | 400.0 | 536.0 |

[1] Calculated as the sum of the means for breakfast, lunch and snack reported in Table II-16.

Tables III-17 and III-18 show that the menus as written by child care food service personnel exceed 67% of the RDA for age in all categories except for energy requirements for older children. In fact, children in a full-day program would possibly be consuming a second snack and, therefore, have an even greater nutrient consumption.

Recommendations for consumption of dietary fat by preschool children remains an issue of controversy. Most guidelines suggest that the intake of fat for children over two years of age begin to mirror those for adults: total fat intake of no more than 30% of calories, with saturated fat providing no more than 10% of total calories (American Academy of Pediatrics, 1992). Other recommendations suggest that in preschool years, the total fat recommendation be 40% of total calories (Olson, 1995). Table III-19 shows the dietary fat content of the 30 breakfast, 58 lunch, and 9 snack child care menus.

**Table III-19. Dietary fat content of breakfast, lunch, and snack menus**

| Meal/Nutrient | Mean (g) | % of Kcal for Meal | % of Daily Kcal |
|---|---|---|---|
| ***Breakfast*** | | | |
| Total fat | 8.74 | 22 | 7 |
| Saturated fat | 3.65 | 9 | 3 |
| ***Lunch*** | | | |
| Total Fat | 19.52 | 35 | 12 |
| Saturated Fat | 6.70 | 12 | 6 |
| ***Snack*** | | | |
| Total Fat | 6.86 | 29 | 6 |
| Saturated Fat | 2.68 | 11 | 2 |
| ***Daily Total*** | | | |
| Total Fat | 35.12 | - | 29 |
| Saturated Fat | 13.03 | - | 11 |

Table III-19 shows that total calories provided by fat is 29%, and calories provided by saturated fat is 11%.

A distinct difference exists between menus that were submitted for analysis as compared to meals that were observed and compared with CACFP guidelines. Submitted menus met and exceeded nutrient requirements for children. Analysis of the observed meal, however, did not meet CACFP guidelines. Research by Briley (1989) found similar results in a study where computerized nutrient analysis of submitted day care menus was adequate for RDAs for children. However, in that same study, actual foods prepared, served, and portions provided were less than the minimum standards required by CACFP.

## Operational Practices of Food Service Personnel and Providers

In addition to menu analysis as an indicator of behavior of child care food service personnel, operational practices were recorded. Table III-20 shows the most frequent serving times for meals and snacks in the child care sites.

**Table III-20. Most frequent meal and snack times as reported by food service personnel and providers**

| Meal | Time | Food service Percent | Providers Percent |
|---|---|---|---|
| **Breakfast** | 6:30 a.m. | 6.9 | 6.8 |
| | 7:00 a.m. | 4.2 | 6.8 |
| | 7:30 a.m. | 13.9 | 20.3 |
| | 8:00 a.m. | 27.8 | 30.5 |
| | 8:30 a.m. | 29.2 | 18.6 |
| **A.M. Snack** | 8:30 a.m. | 21.2 | 3.3 |
| | 9:00 a.m. | 18.2 | 20.0 |
| | 10:00 a.m. | 36.4 | 16.7 |
| **Lunch** | 11:00 a.m. | 26.5 | 18.2 |
| | 11:30 | 28.9 | 42.4 |
| | 12:00 noon | 18.1 | 27.3 |
| **P.M. Snack** | 2:00 p.m. | 13.3 | 12.5 |
| | 2:30 p.m. | 21.3 | 14.1 |
| | 3:00 p.m. | 32.0 | 31.3 |
| | 3:30 p.m. | 14.7 | 20.3 |

Table III-20 indicates that food components were served at the same time in 82% of the observed meals. Doctors' statements verifying special requirements for children were in 58% of the child care settings. Differences between day care centers and day homes were not consistent.

## Menu Posting

Table III-21 shows the frequency of menu posting, substitutions, and documentation in the 92 day care facilities visited.

**Table III-21. Menu posting and substitutions**

| Menu Status | Day Homes | Daycare Centers |
|---|---|---|
| Menus were posted | 75.5 | 74.1 |
| Menu served contained substitutions | 75.0 | 60.0 |
| Menu substitutions documented | 47.4 | 63.6 |
| Records completed on a daily basis | 95.0 | 94.1 |

Table III-21 reveals that a high percentage of menus at the day homes and daycare centers contained substitutions from the original written menu. In addition, 49% of the substitutions were undocumented even though the majority (95%) of respondents completed their CACFP records on a daily basis. Twenty-four percent of the child care sites observed did not post their menus.

## Food Service Procedures

Table III-22 includes food service procedures observed and recorded in each on-site visit to the 92 facilities.

**Table III-22. Food service procedures in child care settings**

| Food Handling Procedure | Day Homes | Daycare Centers |
|---|---|---|
| Hot foods hot | 53.5 | 70.0 |
| Cold food cold | 72.5 | 85.0 |
| Dishwasher method | 57.7 | 58.6 |
| Handwashing method | 82.7 | 72.4 |
| Disposable utensils | 55.8 | 31.0 |

As shown in Table III-22, the highest percentage response rate for food service procedures was handwashing the utensils and equipment. The second highest procedural response was serving cold food cold. Disposable eating utensils were used by 49% of the facilities, with day homes using disposable utensils more than day care centers.

## Food Safety and Sanitation

Table III-23 shows potential problems in food safety in the 92 facilities visited.

**Table III-23. Food safety and sanitation in child care settings**

| Sanitation | Day Homes | Daycare Centers |
|---|---|---|
| Floor visibly clean | 100.0 | 82.1 |
| Refrigerator visibly clean | 100.0 | 82.1 |
| Stove visibly clean | 100.0 | 92.6 |
| Cabinets visibly clean | 75.0 | 85.7 |
| Work area clean | 75.0 | 85.7 |
| Trash area clean | 100.0 | 89.3 |
| Food 6-inches from floor | 75.0 | 88.9 |
| Chemicals away from children | 100.0 | 100.0 |
| Wash hands before serving food | 75.0 | 50.0 |
| Children wash hands before food handling | 100.0 | 33.3 |
| Food in rusted, dented or unlabeled cans | 50.0 | 11.5 |

It is apparent from Table III-23 that most work and cook surfaces were visibly clean in less than 90% of the observations. Handwashing prior to food handling was not done by 58% of child care providers and 43% of children. Sixteen percent of child care settings observed held rusted, dented, or unlabeled canned goods within their food service. Chemicals were, however, consistently kept away from children in 99% of child care centers. In general, day homes were cleaner than day care centers and providers and children in the homes were more observant of handwashing before food handling.

## Refrigerator Temperatures

Table III-24 indicates whether there was a problem of maintaining adequate temperature for food in the 92 child care sites visited. Forty-three percent of hot foods and 23% of cold foods were not maintained at proper temperatures.

**Table III-24. Refrigerator temperatures observed in child care sites**

| Temperature | Day Homes | Daycare Centers |
|---|---|---|
| 22 | 1.9 | - |
| 26 | 1.9 | - |
| 28 | - | 6.9 |
| 30 | 1.9 | - |
| 32 | 9.6 | - |
| 33 | 1.9 | - |
| 34 | 11.5 | 10.3 |
| 35 | 1.9 | - |
| 36 | 3.8 | 20.7 |
| 37 | 19.2 | - |
| 38 | 3.8 | 34.5 |
| 39 | 19.2 | - |
| 40 | 2.8 | 20.7 |
| 42 | 21.2 | 3.0 |
| 44 | 3.8 | 3.4 |
| 46 | 1.9 | - |
| 48 | 1.9 | - |
| 58 | 1.9 | - |

As shown in Table III-24, refrigerator temperatures were within safe levels for the majority of child care sites observed with the exception of three child care facilities with refrigerator temperatures above 45 degrees. However, the danger zone for bacterial growth begins at 40 degrees and 28 of the child care facilities had refrigerator temperatures of 40 degrees or greater. Five refrigerator temperatures were below 32 degrees and may alter quality of some food products. According to Hamilton, Whitney, and Sizer (1991), refrigerator temperatures must be 40 degrees F or below. The Texas Board of Health (1977) cautions that potentially hazardous food must be cooled to an internal temperature of 45 degrees F within four hours.

## Freezer Temperatures

The Texas Board of Health (1977) requires freezer temperatures to be 0 degrees F or below. This law concurs with recommendations made by Hamilton, et al. (1991). Table III-25 records the freezer temperatures observed at the 92 child care sites.

**Table III-25. Freezer temperatures observed in child care sites**

| Temperature | Day Homes | Daycare Centers |
|---|---|---|
| -18 | - | - |
| -12 | 4.0 | - |
| -10 | 8.0 | - |
| -8 | 10.0 | - |
| -6 | 2.0 | 3.7 |
| -4 | 4.0 | 14.8 |
| -2 | 8.0 | 7.4 |
| -1 | - | 3.7 |
| 0 | 16.0 | 7.4 |
| 1 | 4.0 | - |
| 2 | 2.0 | 7.4 |
| 4 | 2.0 | 3.7 |
| 5 | - | - |
| 6 | 8.0 | 3.7 |
| 8 | 2.0 | 11.1 |
| 10 | 8.0 | 3.7 |
| 12 | 8.0 | - |
| 14 | - | 3.7 |
| 16 | 4.0 | 14.8 |
| 18 | 2.0 | 7.4 |
| 20 | 4.0 | - |
| 22 | - | 3.7 |
| 24 | 2.0 | - |
| 28 | - | 3.7 |
| 36 | 2.0 | - |

Table III-25 shows that 47 of the child care freezers were above this limit. Both food quality and food safety are impaired at these higher temperatures. Colder freezer temperatures were observed more in day homes than in day care centers.

## Purchasing/Preparation Techniques

Table III-26 shows the food purchasing/preparation practices of child care food service personnel recorded during the 92 on-site meal observations.

**Table III-26. Characteristics of food purchasing and preparation in child care sites**

| Food Characteristic | Day Home | Daycare Centers |
|---|---|---|
| Reduced fat | 62.2 | 76.9 |
| Basic Four is used | 89.4 | 88.9 |
| Water packed fish | 68.6 | 70.4 |
| Light syrup packed fruit | 86.0 | 76.0 |
| Well drained meat | 87.8 | 92.6 |
| Whole grain bread | 24.0 | 33.3 |
| Reduced fat dressing | 13.7 | 12.0 |
| Salt added to canned vegetables | 68.7 | 81.5 |
| Foods processed with vegetable oil | 82.0 | 73.1 |
| Foods prepared on-site | 92.3 | 100.0 |
| Poultry meat mix 50-50 | 23.5 | 33.3 |
| Vegetables held more than 20 minutes | 56.0 | 66.7 |
| Remove vegetable skins | 39.5 | 40.9 |
| Fat modified recipes | 58.7 | 62.5 |
| Non-stick spray used | 61.5 | 69.2 |
| Reduced salt recipes | 59.6 | 62.5 |

Table III-26 shows that many child care food services were taking steps to reduce fat, salt, and sugar in their meals. However, salt is added to canned vegetables in 70.5% of the observed child care sites. An increase of fiber was poorly emphasized; only 27.1% of those observed used whole grain breads and 42.6% removed skins from fresh fruits and vegetables. Day care centers were slightly better than day homes in purchasing and preparing foods that are more in compliance with the DGA.

## Needs and Recommendations

### Needs

Planned menus are adequate for nutrient needs of children; however, implementation of the menus needs to be consistent with CACFP guidelines. Menu substitutions are frequent and often undocumented.

Maintenance of proper food temperatures and cleanliness of work areas within the food service is not adequate at many child care sites.

Routine handwashing by child care staff and children is not enforced at many child care center sites.

Refrigerator and freezer temperatures are not in compliance with state guidelines in many child care sites.

**Recommendations**

- Provide education for food service workers regarding menu planning with emphasis on making appropriate menu substitutions.
- Provide education for child care food service personnel regarding food safety and sanitation.
- Require food, refrigerator and freezer thermometers be used; temperatures recorded; and necessary adjustments made.

## GOAL 16: Child Care Programs (Homes and Centers) Offer Meals which Reinforce Nutrition Concepts Taught in the Learning Environment.

### Menu Planning Reinforcement of Nutrition Education

All of the child care providers that took part in this study were participating in the CACFP program and were, therefore, attempting to meet those program requirements. Table III-27 refers to the most common references used by child care food service personnel for menu planning.

**Table III-27. References for menu planning**

| Menu Reference | Percent |
|---|---|
| Books | 23.6 |
| Previous Menus | 58.2 |
| Previous Records | 9.1 |
| Government Regulations | 61.8 |

Table III-27 shows that information available from previous menus and government regulations were used most often in menu planning for child care.

Table III-28 shows the person most often responsible for menu writing in the 55 day care centers visited.

**Table III-28. Person responsible for menu planning in child care sites**

| Responsible person for planning menu | Percent |
|---|---|
| Director | 52.7 |
| Dietitian | 23.6 |
| Head cook | 18.2 |
| Food service personnel | 16.4 |

As indicated in Table III-28, the person most often responsible for menu planning in over half of the centers was the day care center director. Over one-fifth of the centers had their menus planned by a dietitian. Table III-29 indicates the length of the menu cycle.

**Table III-29. Length of cycle menu as reported by food service personnel and providers**

| Food Service Personnel | | Providers | |
|---|---|---|---|
| Days of cycle menu | Percent | Days of cycle menu | Percent |
| 0 (Cycle menu not used) | 26.9 | 0 | 65.3 |
| 7 | 1.9 | 7 | 2.7 |
| 10 | 1.9 | - | - |
| 14 | 3.8 | 14 | 6.0 |
| 21 | 1.9 | 21 | 4.0 |
| 28 | 1.9 | - | - |
| 30 | 23.1 | 30 | 10.7 |
| 45 | 32.7 | 45 | 7.3 |
| 60 | 3.8 | 60 | 1.3 |
| 90 | 1.9 | 90 | 1.3 |

Table III-29 shows that a cycle menu was used by 84% of the food service personnel responding to the survey. A cycle menu was used by 33% of the providers who responded to this item.

Child care food service operations must also be able to accommodate special dietary needs of children. Table III-30 shows the number and percentages of special meals served for day care centers and day homes.

**Table III-30. Number of special meals served**

| Day Care Centers | | Day Homes | |
|---|---|---|---|
| Number of special meals | Percent | Number of special meals | Percent |
| 0 | 66.0 | 0 | 86.8 |
| 1 | 8.0 | 1 | 1.3 |
| 2 | 2.0 | 2 | 2.6 |
| 3 | 8.0 | 3 | 6.0 |
| 4 | 6.0 | 4 | 1.3 |
| 5 | 2.0 | 5 | - |
| 6 | 2.0 | 6 | - |

Table III-30 shows that most of the facilities were not required to provide special meals to the children.

## Meal Service

Table III-31 shows the type of meal service used most often in child care settings as reported by the 55 food service personnel and 160 providers.

**Table III-31. Type of meal service as reported by food service personnel and providers**

| Meal Service Type | Food Service Personnel percent | Providers percent |
|---|---|---|
| Cafeteria style | 26.4 | 13.4 |
| Blue plate | 18.0 | 32.3 |
| Family style | 69.2 | 67.7 |

Table III-31 shows that "family-style service" was most often used, with 69.2% of the respondents indicating this as the primary means of food service.

Time that is allowed for eating the meal is an important factor in determining acceptance of the meal. Information was collected on the times allowed for lunch service and snack service. Table III-32

describes the amount of time that is usually allowed for service of 54 lunches as reported by the 55 food service personnel and the 160 providers.

**Table III-32. Time allowed for lunch service as reported by food service personnel and providers**

| Time spent: Lunch | Food Service Personnel Percent | Providers Percent |
|---|---|---|
| Less than 30 minutes | 14.8 | 17.7 |
| 31-45 minutes | 44.4 | 53.8 |
| 46-60 minutes | 24.1 | 18.4 |
| More than 60 minutes | 16.7 | 10.1 |

The highest percentage of food service personnel and providers allowed 31-45 minutes for lunch service.

Table III-33 lists the amount of time allowed for 9 snacks as reported by 55 food service personnel and 160 providers.

**Table III-33. Time allowed for snack service as reported by food service personnel and providers**

| Time spent: Snack | Food Service Personnel Percent | Providers Percent |
|---|---|---|
| Less than 30 minutes | 3.7 | 13.6 |
| 31-45 minutes | 37.0 | 37.0 |
| 46-60 minutes | 44.4 | 32.5 |
| More than 60 minutes | 14.8 | 16.9 |

The highest percentage of food service personnel (44.4%) allowed 20-25 minutes for a snack. The highest percentage of providers (37.0%) permitted 11-19 minutes for snack time.

## Promoters of Nutrition Education

Child care facilities are encouraged to offer nutrition education within their curriculum. Table III-34 lists the individuals that were found to be promoters of nutrition education in the child care settings surveyed as identified by the 55 food service personnel.

**Table III-34. Promoters of nutrition education in child care settings as reported by food service personnel**

| Promoter of Nutrition Education | Percent |
|---|---|
| Day home sponsor | 14.5 |
| Director | 65.5 |
| Food service worker | 32.7 |
| Parent | 27.3 |

Table III-34 shows that respondents to the current survey identified the directors of the child care facility as the primary promoters of nutrition education in the facility.

## Needs and Recommendations

### Needs

Results indicate that menus planned by (or provided for) child care personnel were adequate with regard to nutrient content. However, actual service of the meals and food consumption by the children was not as desirable. Resources were available for use by child care food service personnel for menu planning. Resources for implementation and acceptance of the menus were needed.

### Recommendations

- Develop tools to specifically address needs of child care providers to improve implementation and acceptance of menus.
- Offer training to those individuals who are identified as key promoters of nutrition education in child care settings.

**GOAL 17: Administrators Support Teachers and Food Service Personnel in the Promotion of Nutrition Knowledge, Attitudes, and Behavior and Acknowledge the Relationships of Health, Physical Fitness, and Learning.**

### Administrators' Knowledge of the Relationship of Health, Physical Fitness, and Learning

In this nutrition education assessment of children in registered family homes, group day care homes, and day care centers, administrators were designated as day care center directors and day home sponsors. Assessment of directors and sponsors included knowledge, attitudes, and behavior.

Figure 13 shows the nutrition knowledge assessment of the 28 directors and the 48 sponsors surveyed. This assessment consisted of two major concepts: the relationship between nutrition and health/fitness, and the relationship between nutrition and learning. Each concept was assessed by seven multiple choice items, resulting in a total of 14 items. Figure 13 shows knowledge of the two concepts, expressed in means, for the directors and sponsors.

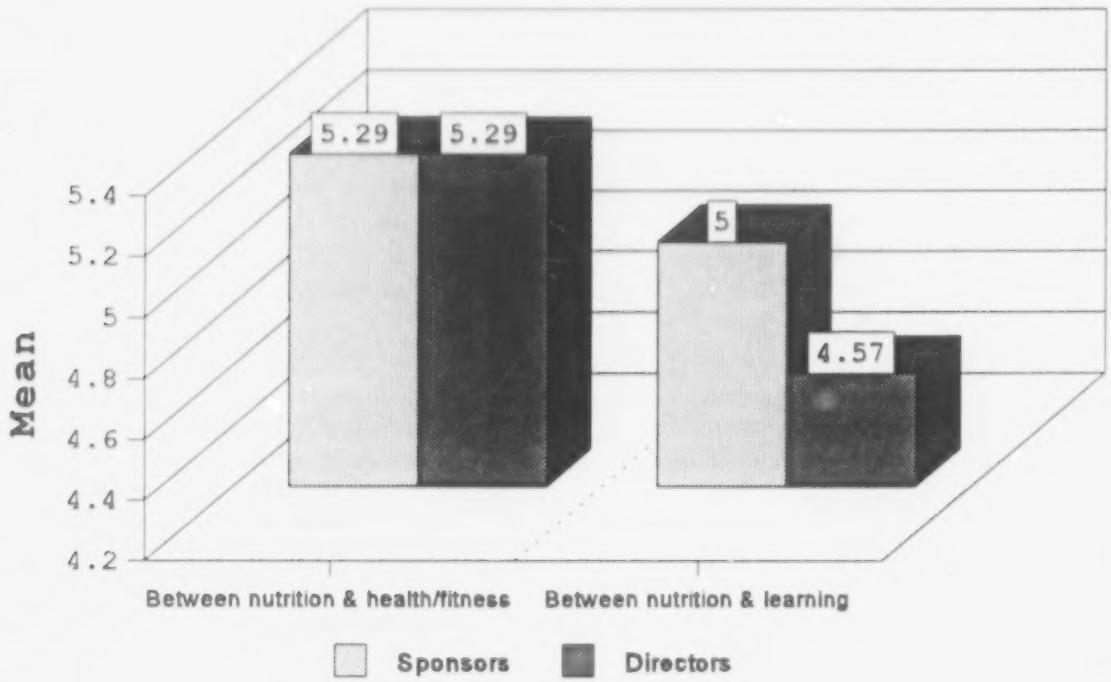



**Figure 13. Directors' and sponsors' knowledge of the relationships between nutrition and health/fitness and nutrition and learning**

The overall mean for the directors' nutrition knowledge instrument was 9.86/14.0. However, while the relationships between nutrition and health subscale was measured at 75.6%, the relationships between nutrition and learning subscale was lower (65.3%). The overall mean for sponsors' knowledge was 10.29/14.0. In addition, both the subscales assessment reached the 70 percentile level of acceptability.

## Administrators' Attitudes toward Nutrition and Nutrition Education

In Table III-35 the results of the 12 attitude scales given to the 28 day care center directors and the 48 day home sponsors are listed.

**Table III-35. Nutrition and nutrition education attitudes of day care center directors and day home sponsors**

| Attitudes | Number of Items | Directors Mean/S.D. | Sponsors Mean/S.D. |
|---|---|---|---|
| Healthy food choices | 2 | 4.43/0.49 | 3.52/0.54 |
| Nutrition and health/fitness | 2 | 4.73/0.42 | 4.82/0.36 |
| Self-responsibility for food selection | 2 | 4.23/0.66 | 4.21/0.87 |
| Nutrition and learning | 2 | 4.80/0.34 | 4.82/0.41 |
| Nutritional needs | 1 | 3.93/1.12 | 4.00/1.10 |
| Functions of nutrition to maintain health | 1 | 4.82/0.39 | 4.65/0.79 |
| Nutrition education | 2 | 4.39/0.60 | 4.40/0.87 |
| ***Total nutrition attitude assessment*** | ***12*** | ***4.49/0.32*** | ***4.34/0.45*** |

Table III-35 shows that the directors had an overall 4.49 mean on a 5-point scale. Their highest value was on functions of nutrition and health, whereas their lowest attitude was toward nutritional needs. Since the total attitude assessment was very positive, no needs or recommendations were made. The sponsors had an overall mean of 4.34 on a 5-point scale. Their highest values were on attitudes toward health and fitness, and attitudes on nutrition and learning. Their least favorable attitude was toward healthy food choices (3.52).

## Problems Related to Nutrition and Nutrition Education as Perceived by Administrators

Table III-36 lists some of the problems that the 28 day care center directors and the 48 day home sponsors have identified in relation to nutrition education.

**Table III-36. Three major factors that inhibit teaching nutrition as identified by day care center directors and day home sponsors**

| Inhibitors in Teaching Nutrition | Directors Percent | Sponsors Percent |
|---|---|---|
| Insufficient funds | | 78.0 |
| Lack of interest among parents, directors & Caregivers | 81.5 | |
| Lack of time to plan, coordinate, implement | 80.8 | 78.0 |
| Shortage of education materials | 68.0 | 77.5 |

As indicated in Table III-36, four-fifths of the directors identified two major factors that inhibit teaching nutrition: (1) lack of interest among parents, directors, and caregivers; and (2) lack of time to plan, coordinate and implement nutrition education. Over three-fourths of the sponsors identified three major factors that caused problems in teaching nutrition: (1) insufficient funds for nutrition education; (2) lack of time to plan, coordinate and implement; and (3) shortage of educational materials.

## Administrators' Support of Nutrition Education

Figure 14 illustrates the responses of the 28 day care center directors and the 48 day home sponsors on how nutrition education is taught.

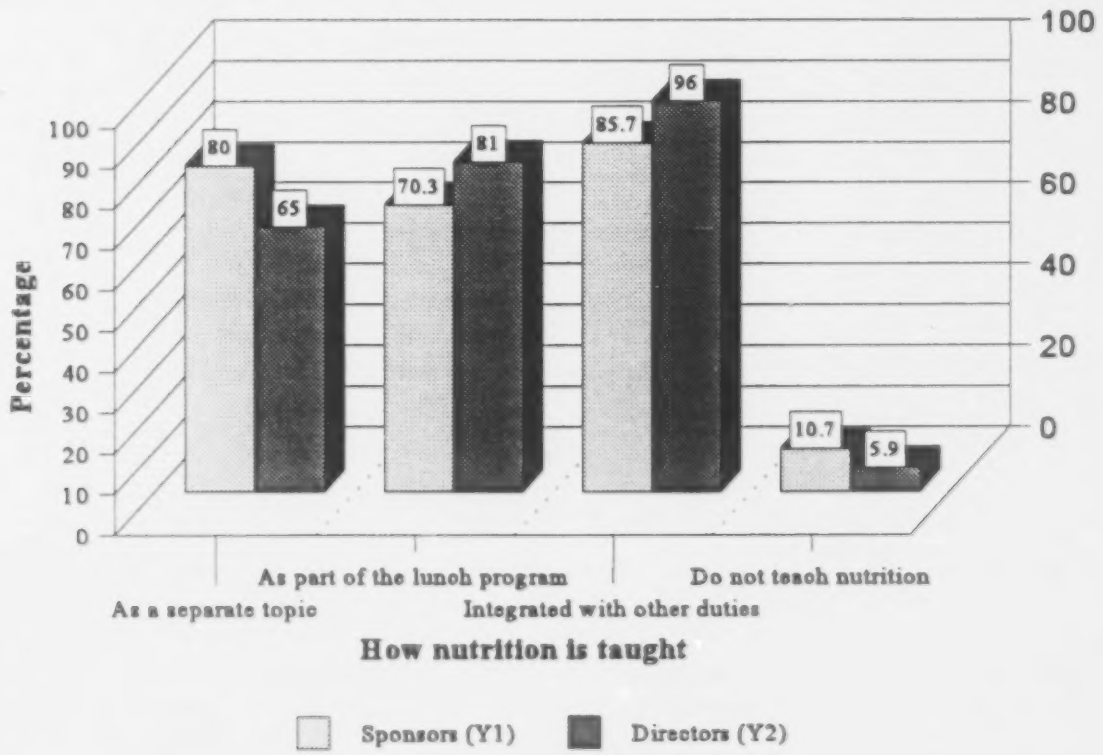



**Figure 14. How nutrition is taught in child care as reported by directors and sponsors**

As shown in Figure 14, over 90% of the directors indicated that nutrition was taught in the child care program that they administered. The nutrition content is most likely to be integrated with other activities. Over 80% of the sponsors indicated that nutrition education is integrated with other activities.

## Nutrition Education as Perceived by Administrators

Figure 15 shows percentages of the 28 directors and the 48 sponsors who identified the concepts that they thought were important to teach.

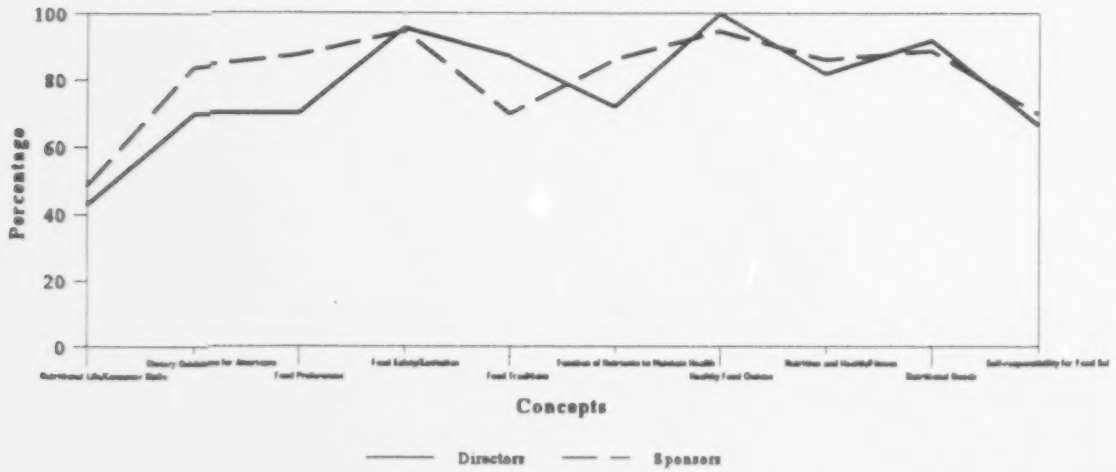



**Figure 15. Key nutrition concepts to teach in child care facilities as reported by directors and sponsors**

It is apparent from Figure 15 that all of the directors identified healthy food choices as a key concept for teaching nutrition. The least number of directors selected nutritional life/consumer skills. All of the nutrition concepts were selected by over two-thirds of the directors, except nutrition life/consumer skills. Sponsors indicated the only nutrition concept below 70% of importance was nutritional life/consumer skills (48.4%). The highest percentage of sponsors identified food safety and sanitation (94.7) for inclusion in nutrition education.

Figure 16 displays the resources that are used in teaching nutrition as reported by the 28 day care center directors and the 48 day home sponsors.

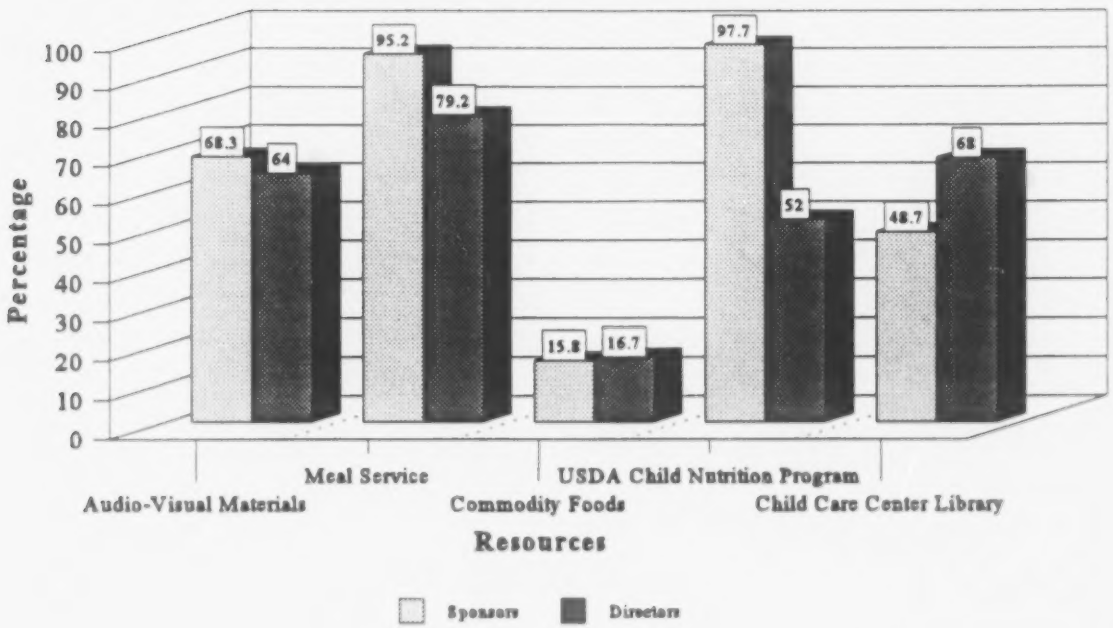



**Figure 16. Resources used to teach nutrition as reported by directors and sponsors**

As shown in Figure 16, the highest percentage of directors (79.2%) indicated that meal service was the most likely resource to use in teaching nutrition. Sponsors reported that the USDA program in nutrition education was the most likely resource to use in teaching nutrition. Almost all of the sponsors (97.7%) indicated that they believed that this resource would be effective.

## Support of Food Service as Perceived by Directors and Sponsors

All of the 28 day care center directors and the 48 day home sponsors rated the eating area as being cheerful and relaxing for children to eat their meals. Table III-37 shows the activity that directors and sponsors provide for food service.

**Table III-37. Food service operational activities provided as reported by directors and sponsors**

| Activity | Directors Percent | Sponsors Percent |
|---|---|---|
| Budget | 81.0 | 68.8 |
| Eating area environment | 90.9 | 20.0 |
| Compliance | 95.2 | 88.6 |
| Family style meal service | 69.6 | 88.6 |
| Food quality | 95.7 | 94.3 |
| Maintenance | 86.4 | 64.7 |
| Food safety and sanitation | 100.0 | 94.4 |
| Scheduling | 100.0 | 62.9 |
| Special events | 95.5 | 56.3 |
| Staffing | 90.5 | 64.5 |

Over 70% of the directors indicated that they provided support for the activities listed; it is noteworthy that 100% of the directors reported being supportive of scheduling, food safety and sanitation. Less support was expressed by sponsors for the food service operational activities. The range of support was from 20% (eating area environment) to 94.4% for food safety and sanitation. Day care center directors were significantly more supportive than day home sponsors of food service activities.

## Needs and Recommendations

### Needs

Results indicate a lack of interest in nutritional education among parents, directors, and caregivers; lack of time to plan, coordinate, and implement nutritional education; and a shortage of nutritional education materials.

### Recommendations

- Provide delivery system to address the:
  - Lack of knowledge regarding the relationship of nutrition and learning;
  - Involve administrators in addressing the inhibitors to nutrition education in order to form an effective collaborative team effort.

## IV. RESEARCH QUESTIONS: RESPONSES AND RECOMMENDATIONS

**Question 1: What Are the Major Nutrition-related Health Problems in Texas among Children in General and among the At-risk Groups? What are the Nutrition Education and Training Needs Related to These Problems?**

### Children's Health and Physical Fitness

In the previous study of 3rd, 5th, 8th, and 11th grade students (Martin, 1994), the prevalence of obesity as determined by the method described above was consistently at 23-25% with no significant differences between age groups, gender groups, or ethnic groups. The prevalence of 7-11% obesity in the preschool group appears significantly less than the 23-25% in older children and adolescents. This would suggest that the prevalence of obesity increases in the early school years.

The amount of physical exercise can make a difference in the health/fitness of children. Less physical activity, or a sedentary life style, has been linked to a greater likelihood of obesity. In light of this, the amount of television viewing was measured. Significant differences were found in the amount of television viewed daily and the ethnicity of the family. African-American and Hispanic children watched significantly more television per day (1 hour, 36 minutes) than White children (1 hour, 15 minutes). On a weekly basis, these children watched 8.75 to 11.2 hours. Our data are in sharp contrast to Nielsen (1990) who reported that preschool children watch television an average of 27 hours weekly.

The period of years six through nine might be examined to determine if there are changes in knowledge, attitudes, or practices which predispose toward obesity. The foods presented in child care settings are likely less flexible than are the choices possible in a school cafeteria/vending area. Likewise, the children in child care are less mobile in the community in terms of other sources of food. Opportunities for physical activity throughout the day might decrease once the children are in the more structured elementary school environment.

### Recommendations

- Promote nutrition and health/fitness through various strategies in order to develop lifelong habits of adequate nutrition and physical activity.

**Question 2: Are There Problems in the Dietary Habits of Children of Diverse Cultural Backgrounds? What Type of Nutrition Education and Training Is Needed to Make Positive Changes in These Habits?**

Special concerns exist for Hispanic and African-American children. Studies of Hispanic children have reported a tendency to obesity as well as short stature (Wiecha & Casey, 1994). Additionally, data from nationwide studies indicate that dietary patterns developed early in life may contribute to the increase in risk factors for chronic disease for African-American people (Johnson, Guthrie, Smiciklas-Wright, & Wang, 1994). Early nutrition education may be especially important for

these at-risk groups. In the current study only African-American, Hispanic, and White children were included in the data analysis regarding ethnicity effect. Asian and Native American children were excluded because of the insufficient number of subjects.

## Nutrition Knowledge of Children

### Effect of Ethnicity

In the current study, nutrition knowledge of children, according to a 4-item test given to younger children and an 8-item test given to older children, did not differ significantly due to ethnicity. The knowledge of children by ethnicity for the 4-item test and the 8-item test is shown in Tables IV-1 and IV-2.

**Table IV-1. Nutrition knowledge of children by ethnicity (4-item test)**

| Concept | African-American Mean/S.D. | Hispanic Mean/S.D. | White Mean/S.D. |
|---|---|---|---|
| Nutrition and learning | 0.35/0.75 | 0.62/0.84 | 0.85/0.93 |
| Healthy food choices | 0.31/0.68 | 0.62/0.82 | 0.88/0.96 |
| Nutrition and health/fitness | 0.27/0.60 | 0.48/0.75 | 0.73/0.83 |
| Self-responsibility for food selection | 0.31/0.68 | 0.38/0.66 | 0.50/0.65 |
| *Total* | *1.23/2.60* | *2.08/2.73* | *2.96/3.12* |

**Table IV-2. Nutrition knowledge of children by ethnicity (8-item test)**

| Concept | African-American Mean/S.D. | Hispanic Mean/S.D. | White Mean/S.D. |
|---|---|---|---|
| Nutrition and learning | 1.00/1.00 | 1.19/0.83 | 1.46/0.78 |
| Healthy food choices | 0.89/0.93 | 1.15/0.83 | 1.54/0.78 |
| Nutrition and health/fitness | 0.78/0.83 | 0.96/0.82 | 1.24/0.73 |
| Self-responsibility for food selection | 0.89/0.93 | 0.73/0.78 | 0.83/0.63 |
| *Total* | *3.56/3.43* | *4.04/2.62* | *5.07/2.43* |

### Effect of Household Income

In addition to the variable of ethnicity, family income was studied for its effect on children's knowledge, attitudes, food choices, and health/fitness. The percentage of meal payments reported by

food service personnel and providers were: full price, 71%; reduced-price, 13% and free, 16%. Tables IV-3 and IV-4 include the mean and standard deviation of children's knowledge on each knowledge concept at each level of family income.

**Table IV-3. Nutrition knowledge of children by household income (4-item test)**

| Concept | Free Mean/S.D. | Reduced-price Mean/S.D. | Full price Mean/S.D. |
|---|---|---|---|
| Nutrition and learning | 0.75/0.45 | 0.80/0.42 | 0.69/0.47 |
| Healthy food choices | 0.83/0.39 | 0.70/0.48 | 0.83/0.50 |
| Nutrition and health/fitness | 0.58/0.51 | 0.50/0.53 | 0.65/0.48 |
| Self-responsibility for food selection | 0.50/0.52 | 0.50/0.53 | 0.50/0.50 |
| ***Total*** | ***2.67/0.78*** | ***2.50/0.97*** | ***2.67/0.97*** |

**Table IV-4. Nutrition knowledge of children by household income (8-item test)**

| Concept | Free Mean/S.D. | Reduced-price Mean/S.D. | Full price Mean/S.D. |
|---|---|---|---|
| Nutrition and learning | 1.71/0.49 | 2.00/0.00 | 1.71/0.47 |
| Healthy food choices | 2.00/0.00 | 1.67/0.52 | 1.70/0.69 |
| Nutrition and health/fitness | 1.43/0.79 | 1.33/0.52 | 1.59/0.69 |
| Self-responsibility for food selection | 1.00/0.82 | 0.82/0.41 | 1.12/0.49 |
| ***Total*** | ***6.14/1.46*** | ***5.83/1.17*** | ***6.12/1.05*** |

Tables IV-3 and IV-4 show minimal differences according to income. Generally, children did not differ on knowledge assessment according to family income.

## Nutrition Attitudes of Children

### Effect of Ethnicity

Table IV-5 includes the percentage of children of different ethnic backgrounds and the mean and standard deviation of their attitude scores.

**Table IV-5. Nutrition attitudes of children by ethnicity**

| Ethnic background | Number/Percent | Mean/S.D. |
|---|---|---|
| White | 204/57.3 | 1.78/0.08 |
| African-American | 42/11.8 | 1.73/0.15 |
| Hispanic | 105/29.3 | 1.73/0.14 |

Table IV-5 shows that ethnicity is a factor in the attitude of children in this study. African-American and Hispanic children had lower attitude scores than did White children. White children had a mean of 1.78 on a 2.0 scale for their nutrition attitude assessment.

## Effect of Household Income

Table IV-6 includes the percentage of children of different family income levels and the mean and standard deviation of their attitude scores.

**Table IV-6. Nutrition attitudes of children by household income**

| Income Level | Number | Percent | Mean/S.D. |
|---|---|---|---|
| Free meal | 57 | .16 | 1.70/0.15 |
| Reduced-price meal | 46 | .13 | 1.79/0.12 |
| Full price meal | 253 | .71 | 1.75/0.16 |

Table IV-6 shows that household income is a factor in nutrition attitudes of children. In this study, children qualifying for reduced-price meals had more positive attitudes than did those qualifying for free meals. Children who qualified for reduced-price meals were significantly different (1.79) in their nutrition attitudes than those qualifying for free meals (1.70). The results may be due to chance, however, since the full price meal students did more poorly than the reduced price students.

## Food Choices of Children by Household Income

The food choices of children, based on selected DGAs, were compared according to household income. No significant differences were found, except for fiber. Table IV-7 displays the fiber food choices of children according to household income.

**Table IV-7. Fiber food choices of children by household income**

| Income Level | Need Percent | Mean/S.D. |
|---|---|---|
| Free meal | 16 | 0.29/0.46 |
| Reduced-Price Meal | 13 | 0.46/0.51 |
| Full price meal | 71 | 0.21/0.41 |

As shown in Table IV-7, the food choice assessment for selection of high fiber foods revealed significant differences according to income. In this assessment, children who qualified for reduced-price meals selected more desirable fiber choices than those who qualified for free meals.

It is known that in the U.S., there are certain economic and sociodemographic characteristics that place a child at a greater risk for poor diet quality (Johnson, 1994). In an evaluation of 1987-88 National Food Consumption Survey data, ethnicity was shown to be related to intakes of several nutrients in small children (Johnson, 1994). In that study, vitamin A intakes were highest in White children; fat, saturated fat, cholesterol, and sodium intakes were highest in African-American children; and other ethnic groups had the lowest intakes of all other nutrients.

Special concerns exist for Hispanic and African-American children. Studies of Hispanic children have reported a tendency to obesity and short stature (Wiecha, 1994). Additionally, data from nationwide studies indicate that dietary patterns developed early in life may contribute to the increase in risk factors for chronic disease for African-American people (Johnson, 1994). Early nutrition education may be especially important for these at-risk groups.

## Recommendations

- Differences in nutrition knowledge and attitudes exist according to both income and ethnicity in the current study. It is suggested that child care providers be given resources to reinforce good eating patterns within a diversity of dietary practices.

- Nutrition education and positive food-related experiences should be initiated at a very early age.

**Question 3: What Are the Competencies and Interests of Educators in the Area of Nutrition Education? What Is the Nutrition Education and Training Needed to Help Develop These Competencies and Interests?**

## Educators' Knowledge Level and Experience

In section III of this report under Goal 8, the knowledge level of day care center teachers and day home providers was reported as acceptable.

Educators' experience in child care environments is reported in Table IV-8.

**Table IV-8. Educators' experience in child care environments**

| Experience in Day Care | Teacher Percent | Provider Percent |
|---|---|---|
| < 5 years | 42.3 | 29.9 |
| 6 - 10 years | 34.6 | 31.0 |
| 11 - 20 years | 15.4 | 27.6 |
| 21 - 30 | 3.8 | 10.3 |
| > 30 years | 3.8 | 1.1 |

As is apparent from Table IV-8, the highest percentage of teachers (42.3%) had five or less years of experience in child care sites. Providers had a higher percentage (31.0%) of respondents with 6 - 10 years of experience.

## Comparison of Teachers and Providers: Knowledge, Attitudes, and Food Choices

Table IV-9 contains the findings of analysis of variance (ANOVA) on the knowledge, attitudes, and food choices of the 73 teachers and the 160 providers. Specific information on each assessment is reported under Goals 8 (Knowledge), 9 (Attitudes) and 10 (Food Choice).

**Table IV-9. ANOVA of teachers' and providers' knowledge, attitudes, and food choices**

| Total Assessments | Teachers Mean/S.D. | Providers Mean/S.D. |
|---|---|---|
| Knowledge | 11.38/2.09 | 9.19/1.78 |
| Attitudes | 4.36/0.31 | 4.39/0.34 |
| *Food choice* | | |
| Child present | 9.11/1.83 | 9.28/1.81 |
| Child not present | 6.22/1.97 | 7.47/2.17 |

Data in Table IV-9 shows a significant difference between the providers and the teachers when the food choices were made in the children's absence. Providers had a significantly higher overall desirable answer than the teachers. Actually, significant differences were found on the subscales of alcohol, sodium, and variety; the providers demonstrated a higher level of desirable behavior.

Table IV-10 summarizes the results of food choices of 27 teachers and 88 providers according to the DGAs.

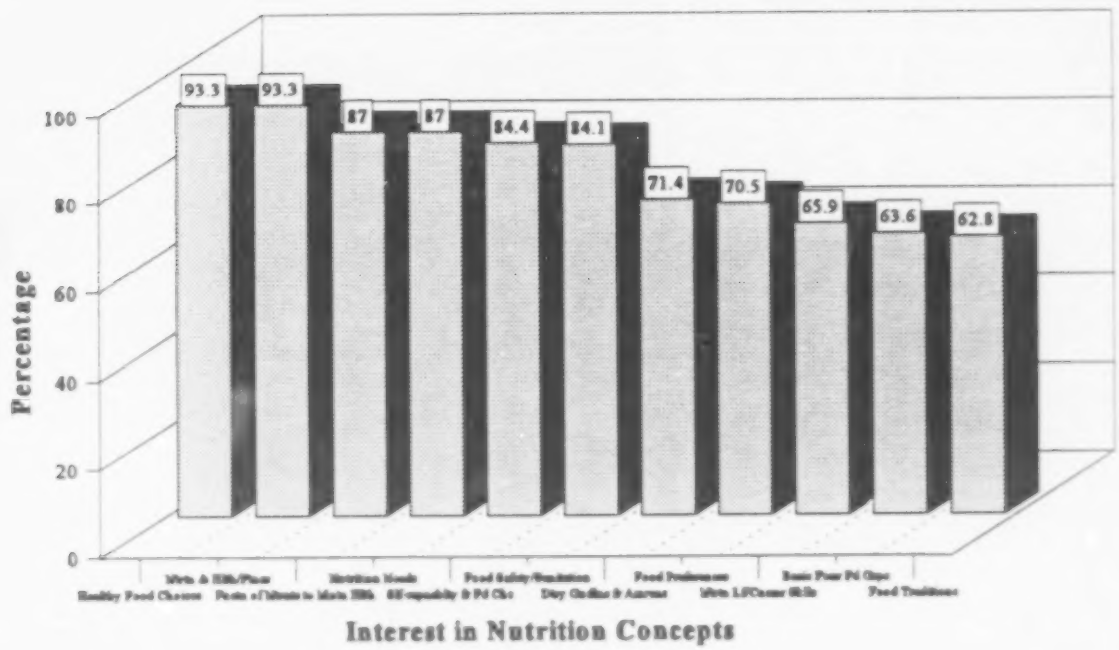
**Table IV-10. Comparison of teachers' and providers' food choices**

| | | Teachers | | Providers | |
|---|---|---|---|---|---|
| DGAs | Number of Items | Children Present | Children not present | Children present | Children not present |
| Sugar | 2 | 1.85 | 1.07 | 1.68 | 1.32 |
| Fat | 2 | 1.26 | 0.74 | 1.26 | 0.77 |
| Fiber | 1 | 0.70 | -/63 | 0.85 | 0.74 |
| Alcohol | 2 | 1.88 | 1.73 | 1.97 | 1.97 |
| Sodium | 3 | 1.74 | 1.11 | 1.77 | 1.51 |
| Variety | 2 | 1.74 | 1.00 | 1.77 | 1.18 |
| *Total* | *12* | *9.11 (82.8%)* | *6.22 (56.5%)* | *9.28 (77.3%)* | *7.74 (62.3%)* |

Table IV-10 shows that teachers demonstrated a higher level of desirable food choices (82.8%) when children were present than providers (77.3%). While it is encouraging to have both teachers and providers surpass the 70.0% level in their food selections, the recommendations set by the U.S. Public Health Service (United States Department of Health and Human Services, 1990) are established at 90.0%. When children were assumed absent, teachers made 56.5% desirable responses and providers selected 62.3% desirable responses.

## Teachers' Interest in Learning about Nutrition

Figure 17 illustrates the 73 teachers' interest in learning about nutrition. The teachers responded to a list of nutrition concepts.




## Figure 17. Interest in nutrition concepts as reported by teachers

Figure 17 reports that teachers want to learn more about all of the nutritional concepts. Over 60% of the teachers reported that they were interested in learning more about every nutrition concept.

Table IV-11 identifies the public agency and training resources that 88 teachers use to help teach nutrition to preschool children.

**Table IV-11. Agencies and training sources used to help teach nutritcn as reported by teachers**

| Agencies and Training Sources | Teachers Percent |
|---|---|
| American Cancer Society | 11.0 |
| American Dairy Council | 15.1 |
| American Heart Association | 21.9 |
| American Milk Producers, Inc. | 5.5 |
| Cooperative Extension Service | 15.1 |
| In-service Training | 46.6 |
| NET Resource Materials | 17.8 |
| NET Workshops | 21.9 |
| Texas Department of Agriculture | 15.1 |
| Textbooks | 37.0 |
| Videotapes | 20.5 |
| AFDC | 4.1 |
| WIC | 11.0 |

As indicated in Table IV-11, the agency which received the highest percentage of response was the American Heart Association. This finding is in agreement with the results from the teachers of children in grades 3, 5, 8, and 11 which was reported by Martin (1994). In-service training was reported as the highest form of structured nutrition training.

## Recommendations

- Capture the high interest of teachers in learning more about nutrition concepts and nutrition education.
- Consider the preferences of teachers for additional nutrition education, including their responses to desired formats for training sessions.

**Question 4: Do Educators Encounter Problems in Conducting Effective Nutrition Education Activities? If So, What In-service Training and/or Materials Can Assist in Alleviating These Problems?**

## Inhibitors in Teaching Nutrition

A list of problems that could have a negative effect on teaching nutrition was developed from a review of the literature. Teachers and providers responded to this list to acknowledge the problem they

had in nutrition education. Table III-11 in the previous section indicated that the highest percentage of teachers identified lack of time to plan, coordinate, and implement nutrition education as the problem. Approximately one-fifth of the teachers reported that calendars were too full of activities. Almost 70% of the providers identified insufficient funds to support nutrition education as a problem. In addition to lack of time to plan, coordinate, and implement nutrition education, insufficient funds to support nutrition education was also high on the list for teachers. Whether the insufficient funding is related to the shortage of educational materials was not revealed. Part of the problem of not having education materials may be due to the lack of knowledge about professionally prepared nutrition education materials that are free, on loan, or low cost. Over 60% of the providers indicated that there was a lack of interest in nutrition education among parents, directors, and caregivers.

## Curriculum Guides

### Guides Available to Teachers

Table IV-12 identifies the nutrition education curriculum guides available for teaching. No response was received from the 73 teachers when asked to list other curriculum guides.

**Table IV-12. Nutrition education curriculum guides available to teachers**

| Curriculum Guides | Teachers Percent |
|---|---|
| Changing the Course (American Cancer Society, 1990 | 4.1 |
| Education for Self-responsibility IV Nutrition Education (TEA, 1992) | 8.2 |
| Guide developed for your center | 35.6 |
| The Heart Treasure Chest (American Heart Association, 1984) | 9.6 |
| Project TEACH (Texas Education & Agriculture Cooperating for Health, 1991) | 2.7 |

From Table IV-12, it is evident that the self-developed guides were the highest number of curriculum guides available. Although the teachers reported that the American Heart Association was a major source of support, only 10% of the teachers indicated that the Heart Treasure Chest (American Heart Association, 1984) was available for their use in teaching nutrition education at the child care site.

### Guides Used by Teachers

In Table IV-13, the teachers have indicated the nutrition education curriculum guides they use.

**Table IV-13. Nutrition education curriculum guides used in teaching as reported by teachers**

| Curriculum Guides | Teachers Percent |
|---|---|
| Changing the Course (American Cancer Society, 1990 | 5.5 |
| Education for Self-responsibility IV Nutrition Education (TEA, 1992) | 9.6 |
| Guide developed for your center | 30.1 |
| The Heart Treasure Chest (American Heart Association, 1984) | 9.6 |
| Project TEACH (Texas Education & Agriculture Cooperating for Health, 1991) | 4.1 |

As would be expected, Table IV-13 shows that teachers rely mainly on using a guide developed for their child care programs. Again, the American Heart Association's publication was in the 10% range of use. The usage of the Texas Education Agency's publication Education for Self-Responsibility IV - Nutrition Education (TEA, 1992) was tied with The Heart Treasure Chest (American Heart Association, 1984).

One needs to interpret these findings cautiously; because the use of nutrition education curriculum guides ranges from less than 5% to 30%. Since teachers did not report using other curriculum guides, there may be need for further study in this area.

## In-service Training

### Preferred Topics

The preferences of the 73 teachers and the 160 providers for nutrition education training are identified in Table IV-14. Teachers and providers responded to a list of topics and could, but did not, add additional items to the nutrition education training opportunities.

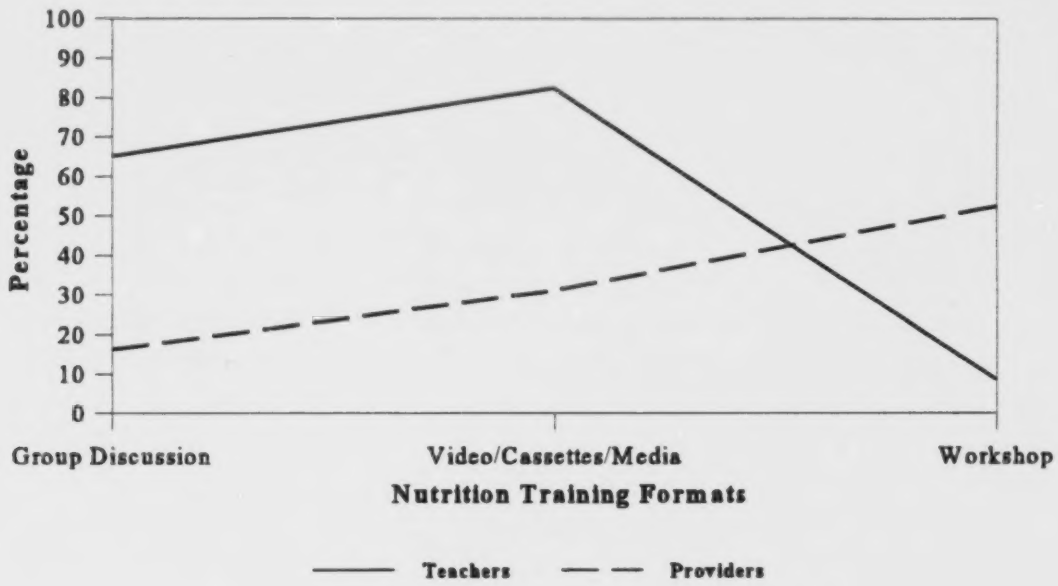
**Table IV-14. Nutrition topics most preferred for training as reported by teachers and providers**

| Nutrition Training Topics | Teachers Percent | Providers Percent |
|---|---|---|
| Basic four food groups | 41.4 | |
| Nutrition and health/fitness | 23.9 | |
| Food safety and sanitation | 23.5 | |
| Menu planning | | 40.7 |
| Buying food economically | | 27.6 |
| Preparing nutritional food | | 34.1 |

Table IV-14 shows that over 40% of the teachers wanted to learn more about the Basic Four Food Groups. Their response to this topic is related to some type of guidelines for teaching nutrition to children. A transition from transferring knowledge about the Basic Four Food Groups will be needed as the Food Guide Pyramid and the DGAs will be phased into the standards for nutrition of preschool children. Thus, teachers will need to become confident in their knowledge of new standards and guidelines before they can teach this information to the children. Two-fifths of the providers expressed a desire to study menu planning as a training topic.

**Preferred Training Format**

Figure 18 portrays the nutrition education training methods preferred by the 73 teachers and the 160 providers. When asked to list other formats for training, teachers and providers did not respond.




## Figure 18. Preferred training format in nutrition as reported by teachers and providers

As shown in Figure 18, over four-fifths of the teachers indicated that they preferred technology (videocassettes and/or media) as a method for training. These findings are consistent with the Texas public and private school teachers (Martin, 1994). All of the teachers (grades 3, 5, 8 and 11) indicated videocassettes and/or media as their first choice, and lecture was one of the lowest preferred formats. However, teachers of preschool children had a strong preference for a lecture format (80.4%). Providers indicated their strongest preference for training was the workshop format.

## Recommendations

### Recommendations

- Teachers and providers could benefit from having more information about the availability of curriculum guides and support materials to help plan and teach nutrition education to children. Professional curriculum guides can provide valuable support for these preschool educators. Agencies which sponsor professionally developed curriculum guides need to convey the availability of their guides to educators.

- Teachers' and providers' training needs and the training formats they prefer should be considered by those organizations that are responsible for their training.

**Question 5: What Are the Competencies and Interests of Food Service Personnel in the Areas of Food Service Management and Nutrition Education? What Is the Nutrition Education and Training Needed to Help Develop These Competencies and Interests?**

## Competence of Food Service Personnel and Providers

### Nutrition Knowledge

As reported in Section III of this report under Goal 12, food service personnel demonstrated a total average of 82% on the knowledge assessment. Their lowest subscale mean was 71%. The providers had a lower overall mean, 77%. The providers' subscale with the lowest mean (58%) was DGAs.

### Management Knowledge

The management knowledge findings were reported under Goal 14 in Section III of this report. The overall mean (68%) was unacceptable along with the subscales of menu planning (64%) and food service (16%).

## Attitude Assessment

An overall positive attitude (4.45/5.0) was found for food service personnel (Goal 13). Their least favorable attitude was toward the subscale healthy food choices (3.81/5.0); the most favorable attitude was toward DGAs (4.80).

Providers' attitudes were positive (4.39/5.0) toward nutrition with their least favorable attitude being healthy food choices. Their most favorable attitude was toward the DGAs. It is interesting to note how the findings are so similar between these two groups.

## Education and Experience

Table IV-15 shows the education level of the 55 day care center food service personnel and the 160 day home providers.

**Table IV-15. Education of food service personnel and providers**

| Level of Education | Food Service Personnel Percent | Providers Percent |
|---|---|---|
| Less than high school | 1.8 | 5.0 |
| High school | 30.9 | 31.4 |
| Some college | 29.1 | 38.4 |
| Associate degree | 7.3 | 7.5 |
| College degree | 23.6 | 12.6 |
| Graduate degree | 7.3 | 5.0 |

Table IV-15 shows that over 30% of food service personnel and providers had a high school education, 23.6% of the food service personnel had a college degree compared to 12.6% of the providers and over 7% of the food service personnel had a graduate degree compared to 5% of the providers.

In this study, 83.6% of the 55 food service personnel and the 160 providers studied nutrition at various levels. Table IV-16 shows the educational setting of this nutrition education.

**Table IV-16. Nutrition education of food service personnel and providers**

| Source of Nutrition Education | Personnel Percent | Providers Percent |
|---|---|---|
| Junior high school | 16.4 | 15.0 |
| High school | 36.4 | 31.9 |
| Community college | 10.9 | 15.0 |
| College | 21.8 | 5.6 |
| Workshops | 50.9 | 73.1 |

Table IV-16 shows the importance that workshops have had in the training of food service personnel and providers. Workshops were the most frequent source of nutrition education for this audience.

Table IV-17 describes the child care experience of the 55 food service personnel and the 160 providers.

**Table IV-17. Child care experience of food service personnel and providers**

| Length of Experience | Food Service Percent | Providers Percent |
|---|---|---|
| Less than 5 years | 37.0 | 29.9 |
| 6 - 10 years | 18.5 | 31.0 |
| 11 - 20 years | 35.2 | 27.6 |
| 21 - 30 years | 7.4 | 10.3 |
| More than 30 years | 1.9 | 1.1 |

As indicated in Table IV-17, over half of the food service workers have been in a child care setting for five years and many for more than twenty years.

## Training

### Preferred Topics

Almost 90% (89.1%) of the food service personnel and providers reported an interest in additional nutrition education training. Over four-fifths (82.3%) of the food service providers expressed an interest in pursuing further training in nutrition education.

When asked if they were interested in further nutrition training, positive responses were identified by 89.1% of the food service personnel and 82.3% of the providers.

The 55 day care center food service personnel and the 160 day home providers were asked to identify topics that would be of interest for future training sessions. Respondents identified first, second, and third choices for training in nutrition. Tables IV-18, IV-19, and IV-20 describe these topics.

**Table IV-18. Training topics of interest to food service personnel and providers - first choice**

| Topic | Personnel Percent | Providers Percent |
|---|---|---|
| Menu planning | 44.0 | 34.9 |
| Nutrition information | 14.0 | 14.4 |
| Attitude toward food | 10.0 | 5.6 |
| Use of computer aids for menu planning | 10.0 | |
| Preparing nutritious food | 8.0 | 8.8 |
| Planning menus | 6.0 | |
| Dietary Guidelines for Americans | 4.0 | 15.6 |
| Food safety and sanitation | 2.0 | 5.0 |
| Buying food economically | 2.0 | 16.3 |

**Table IV-19. Training topics of interest to food service personnel and providers - second choice**

| Topic | Personnel Percent | Providers Percent |
|---|---|---|
| Buying food economically | 32.0 | 23.1 |
| Nutrition information | 26.0 | 18.8 |
| Preparing nutritious food | 10.0 | 17.5 |
| Menu planning | 8.0 | 6.3 |
| Attitude toward food | 6.0 | 8.8 |
| Planning menus | 6.0 | |
| Food safety and sanitation | 4.0 | 9.4 |
| Use of computer aids for menu planning | 4.0 | |
| Dietary Guidelines for Americans | 2.0 | 16.3 |
| Other | 2.0 | |

**Table IV-20. Training topics of interest to food service personnel and providers - third choice**

| Topic | Personnel Percent | Providers Percent |
|---|---|---|
| Preparing nutritious food | 41.7 | 26.9 |

| Topic | Personnel Percent | Providers Percent |
|---|---|---|
| Buying food economically | 10.4 | 13.8 |
| Other | 8.4 | |
| Menu planning | 8.3 | 11.9 |
| Nutrition information | 8.3 | 11.3 |
| Use of computer aids for menu planning | 8.3 | |
| Attitude toward food | 6.3 | 8.8 |
| Dietary Guidelines for Americans | 4.2 | 21.3 |
| Planning menus | 2.1 | 1.3 |
| Food safety and sanitation | 2.1 | 5.0 |

As indicated in Tables IV-18, IV-19, and IV-20, primary topics of interest to food service personnel and providers for future training were menu planning, buying food economically, and preparing nutritious food. Nutrition information was also one of the topics selected more frequently as a first choice.

## Preferred Formats

The desired format for presenting nutrition information to 92 food service personnel is given in Table IV-21.

**Table IV-21. Format for future training identified by food service personnel and providers**

| Format | Food Service Percent | Providers Percent |
|---|---|---|
| Group discussion | 13.8 | 16.3 |
| Lecture | 3.8 | 0.0 |
| Media presentation | 77.5 | 31.2 |
| Independent Study | 1.3 | 0.0 |
| Workshops | 0.0 | 52.5 |

Table IV-21 shows that the workshop-style presentation of nutrition information is most desirable to providers while media presentation is the training format that is desired by the majority of the day care center food service personnel.

Data collected and reported in Goals 13 through 16 of this report indicate that child care food service personnel and providers had an acceptable knowledge of nutrition concepts and that attitudes toward nutrition were very positive. Problems were detected in several areas, however. First, knowledge of many food service management concepts was low. Secondly, sanitation was not acceptable in many cases. And, lastly, menu implementation and acceptance needed improvement. Therefore, training needs are highest in the areas of food safety, menu planning, and food preparation.

Menu planning was identified as a priority for training by this population and should be included for future training. Food safety and sanitation is a low priority training requirement by food service personnel. The needs shown in the current study, however, indicate that efforts to improve food safety and sanitation are needed. Therefore, workshops or other teaching modalities are needed to address the requirements for food safety.

Tables IV-18, IV-19, and IV-20 showed that "preparation of nutritious food" was identified as a priority for training by many food service personnel and providers. Training on this topic is needed and may improve food acceptance by children. Therefore, the following recommendations are made.

## Recommendations

- Provide workshop-style format of nutrition education to child care food service personnel and providers in the areas of:

  --menu planning/implementation

  --food safety/sanitation

  --food preparation and acceptance

- Provide more frequent feed-back or means of self-assessment for food service personnel and providers in these areas.

- Deliver the information above in an education format and style that accommodates the levels of education for this audience.

**Question 6: Do Food Service Personnel Encounter Problems in Procuring and/or Preparing Nutritious and Appealing Food Economically? If So, What In-service Training and/or Materials Can Assist in Alleviating These Problems?**

## Problem Areas

Of the 55 food service personnel surveyed in the current study, 29.1% indicated problems in preparing food for their child care, whereas 28.1% of the 160 providers reported problems in this area. Both cost of production and quality of food prepared may be responsible. Food service personnel

indicated problems in preparing food (28.6%); one-fifth (20.3%) of the providers indicated that they had problems in food preparation.

## Resource Needs

The 55 food service personnel were asked to respond to the need for resources that might assist in meal preparation. Table IV-22 shows their response to resources for improving food preparation.

**Table IV-22. Resources to assist food service personnel in food preparation**

| Resource | Percent |
|---|---|
| Menu planning | 76.4 |
| Introduction of new foods | 49.1 |
| Multi-cultural information | 41.8 |
| Computer assistance | 32.7 |
| Guidelines for storage, inventory and supplies | 29.1 |

Table IV-22 shows that the resources needed to help in food preparation, in descending order, were: menu planning, 76.4%; introduction of new foods, 49.1%; multi-cultural information, 41.8%; computer assistance, 32.7%; and guidelines for storage, inventory and supplies, 29.1%.

Table IV-23 shows the 55 food service personnel's response to resources for improving the cost of food purchasing.

**Table IV-23. Resources to help food service personnel purchase food economically**

| Resource | Percent |
|---|---|
| Menu planning | 72.7 |
| Introduction of new foods | 56.4 |
| Multi-cultural information | 34.5 |
| Computer assistance | 32.7 |
| Guidelines for storage, inventory and supplies | 32.7 |

Table IV-23 indicates that the resources needed to assist food service personnel in food purchasing, in descending order, were: menu planning, 72.7%; introduction of new foods, 56.4%; multi-cultural information, 34.5%; computer assistance, 32.7%; and guidelines for storage, inventory and supplies, 32.7%.

These results indicate that food service personnel feel resources and training in menu planning would be of benefit. Goals of such training would work to improve the quality of food prepared, and also improve the economy of the meal itself. It must be noted here that menu analysis indicated that menus were developed or were made available to child care facilities which were adequate in nutrient content, met program requirements, and were compliant with dietary guidelines. The real problem was in the implementation of those planned menus and their acceptance by children.

## Recommendations

- Provide training and tools for on-site assistance in making appropriate menu substitutions.
- Assist child care facilities in assessing food quality and acceptance by children.
- Encourage/require sponsors of child care food services to develop a system for peer communication in order to share recipes, cooking techniques, and purchasing strategies to increase meal acceptance.

**Question 7: Do Child Care Administrators Recognize the Importance of Nutrition Education and Training? Do They Encounter Problems in Coordinating the Nutrition Education Efforts of Teachers with the Meal Preparation and Activities of the Food Service Personnel? If So, What Is the Nutrition Education and Training Needed to Help Alleviate These Problems?**

## Introduction: Nutrition Education Background of Administrators

The nutrition educational background of the 28 day care center directors and the 48 day home sponsors is reported in Table IV-24.

**Table IV-24. Nutrition education of day care center directors and day home sponsors**

| Nutrition Education | Directors Percent | Sponsors Percent |
|---|---|---|
| High School | 87.0 | 75.6 |
| College as part of another course | 69.6 | 57.9 |
| College course(s) in nutrition | 38.9 | 45.0 |
| ***College credit hours in nutrition*** | | |
| 1 credit hour | 10.0 | 16.7 |
| 3-4 credit hours | 30.0 | 16.7 |
| 6 credit hours | 30.0 | 8.3 |
| 9 credit hours | 10.0 | 25.0 |
| 12 or more credit hours | 20.0 | 16.7 |

As apparent from Table IV-24, almost 90% of the directors and three-fourths of the sponsors had studied nutrition in high school. In addition, almost 40% of the directors and 45% of the sponsors had taken nutrition courses in college.

## Administrators' Attitudes Toward Nutrition and Nutrition Education

As mentioned in section III of this report under Goal 17, the day care center directors had a very positive attitude toward nutrition and nutrition education, evidenced by a mean of 4.49 on a 5-point scale. Day home sponsors had a lower overall mean attitude (4.34/5.0), though still very positive, toward nutrition and nutrition education.

## Training Resources Preferred by Administrators

Table IV-25 depicts the nutrition education resources that the 28 day care center directors and the 48 day home sponsors reported being used by educators in their child care facilities.

**Table IV-25. Resources used to help educators acquire nutrition knowledge as reported by directors and sponsors**

| | Directors | | Sponsors | |
|---|---|---|---|---|
| Resources | Number | Percent | Number | Percent |
| American Cancer Society | 9 | 42.9 | 17 | 47.2 |
| American Dairy Council | 10 | 47.6 | 17 | 47.2 |
| American Heart Association | 15 | 68.2 | 25 | 69.4 |
| American Milk Producers, Inc. | 7 | 33.3 | 17 | 48.6 |
| Cooperative Extension Service | 8 | 38.1 | 22 | 62.9 |
| In-service Training | 20 | 90.9 | 29 | 78.4 |
| NET/TDHS Resource Materials | 14 | 60.9 | 45 | 100.0 |
| NET/TDHS Workshops Fitness | 10 | 50.0 | 33 | 84.6 |
| Textbooks | 15 | 68.2 | 25 | 67.6 |

As reported in Table IV-25, directors indicated in-service training as the highest resource used by teachers in their day care centers, whereas the lowest was the Associated Milk Producers. All sponsors indicated that NET/TDHS resource materials were used and about 80% indicated the NET/TDHS workshops.

## Comparison of Responses of Teachers, Providers, and Food Service Personnel

### Nutrition Knowledge

Table IV-26 summarizes the results of knowledge achievement of the 27 teachers, the 88 providers, and the 55 food service personnel.

**Table IV-26. Nutrition knowledge of teachers, providers, and food service personnel**

| Knowledge | Teachers Percent | Providers Percent | Food Service Percent |
|---|---|---|---|
| Nutrition and learning | 74 | 78 | 81 |
| Nutritional needs | 71 | 86 | 91 |
| Healthy food choices | 68 | 78 | 80 |
| DGAs | 41 | 58 | 78 |
| Knowledge & health/fitness | 74 | 75 | 71 |
| Knowledge & self-responsibility | 95 | 96 | 96 |
| Food safety & sanitation | 72 | 79 | 83 |
| ***Total*** | ***71*** | ***77*** | ***82*** |

Table IV-26 shows that, in descending order, food service personnel knew the most about nutrition (82%), followed by the providers (77%); followed by the teachers (71%).

## Nutrition Attitudes

Table IV-27 summarizes the results of the attitude assessment for the 27 teachers, the 88 providers, and the 55 food service personnel.

**Table IV-27. Attitudes of teachers, providers, and food service personnel**

| Attitude | Teachers Mean/S.D. | Providers Mean/S.D. | Food Service Mean/S.D. |
|---|---|---|---|
| Nutrition & learning | 4.79/0.34 | 4.57/0.43 | 4.68/0.33 |
| DGAs | 4.79/0.33 | 4.80/0.34 | 4.80/0.31 |
| Healthy food choices | 4.30/0.70 | 4.10/0.72 | 3.81/0.65 |
| Nutrition & health/fitness | 4.71/0.42 | 4.68/0.54 | 4.57/0.50 |
| ***Total*** | ***4.36/0.31*** | ***4.39/0.34*** | ***4.45/0.30*** |

Comparison of the nutrition attitudes of teachers, providers, and food service personnel in Table IV-27 shows no significant differences among the three groups. All had desirable attitudes toward nutrition. Their total attitude scores ranged from 4.36/5.0 to 4.45/5.0.

Table IV-28 compares the responses of 28 day care center directors, the 48 day home sponsors, and the 160 day home providers to a list of activities developed from literature and experienced child

care specialists, that could be used to promote nutrition education.

**Table IV-28. Activities to be used in teaching nutrition as reported by directors, sponsors, and providers**

| List of Activities | Directors Percent | Sponsors Percent | Providers Percent |
|---|---|---|---|
| Caregivers should sponsor tasting parties in the learning area | 29.3 | 97.4 | 76.3 |
| I support tasting parties in the eating area | 100.0 | 89.7 | 81.9 |
| Cooks should be invited to teach nutrition in the learning area | 79.2 | 82.1 | 71.4 |
| There is limited time for nutrition education during meal service | 56.5 | 64.1 | 73.0 |
| Caregivers should participate in nutrition education during meal service | 100.0 | 89.7 | 94.9 |
| Children should be encouraged to notice nutrition posters and materials in the eating area | 96.0 | 95.0 | 84.2 |
| Caregivers seldom eat meals in the eating area | 8.7 | 30.0 | 27.8 |
| Caregivers should eat the same foods served to children | 96.0 | 95.0 | 90.8 |
| Meals should be served family style at the child care center | 75.0 | 94.6 | 96.3 |

Table IV-28 reveals that the three groups supported most activities, especially tasting parties in the eating area, and caregivers participating in nutrition education during the meal service. A lower percentage of directors supported caregivers sponsoring tasting parties in the learning area.

Ninety percent of the 73 teachers and 85% of the providers reported that they teach nutrition in the child care sites. Table IV-29 shows the nutrition education activities as reported by teachers and providers.

**Table IV-29. Nutrition education activities as reported by teachers and providers**

| Activities | Teachers Percent | Providers Percent |
|---|---|---|
| Tasting party | 63.0 | 76.3 |
| Observe food preparation | 56.2 | 73.0 |
| Incorporate children in food preparation | 75.3 | ---- |
| Helping in food preparation | 69.9 | 71.4 |
| Eating with children | 80.8 | 87.0 |
| Food area cheerful | 61.3 | 71.7 |

Table IV-29 indicates that over one-half of the teachers and providers participated and/or supported children learning about nutrition through food related activities. Table IV-30 identifies the participation in nutrition education in the children's eating area as reported by food service personnel.

**Table IV-30. Participation in nutrition education in the children's eating area as reported by food service personnel**

| Participation | Percent |
|---|---|
| I participate in nutrition education | 55.0 |
| I am invited to teach nutrition | 20.0 |
| I invite the children's cook to teach nutrition | 10.0 |
| I work with the teacher | 20.0 |
| I sponsor tasting parties in the eating area | 20.0 |
| I sponsor tasting parties in the learning area | 30.0 |

Table IV-30 shows that although over one-half of the food service personnel reported that they participated in nutrition education, 30% or less of them were active participants. Their responses ranged from 10-30% for involvement in specific nutrition education activities.

Note that the tasting party was supported by the administrators, the teachers, the providers, and the food service personnel. Eating with the children was highly supported by teachers, providers, directors, and sponsors.

Figure 19 reports the individual who serves as the coordinator of nutrition education. This figure provides the responses of directors, sponsors, teachers, and food service personnel.

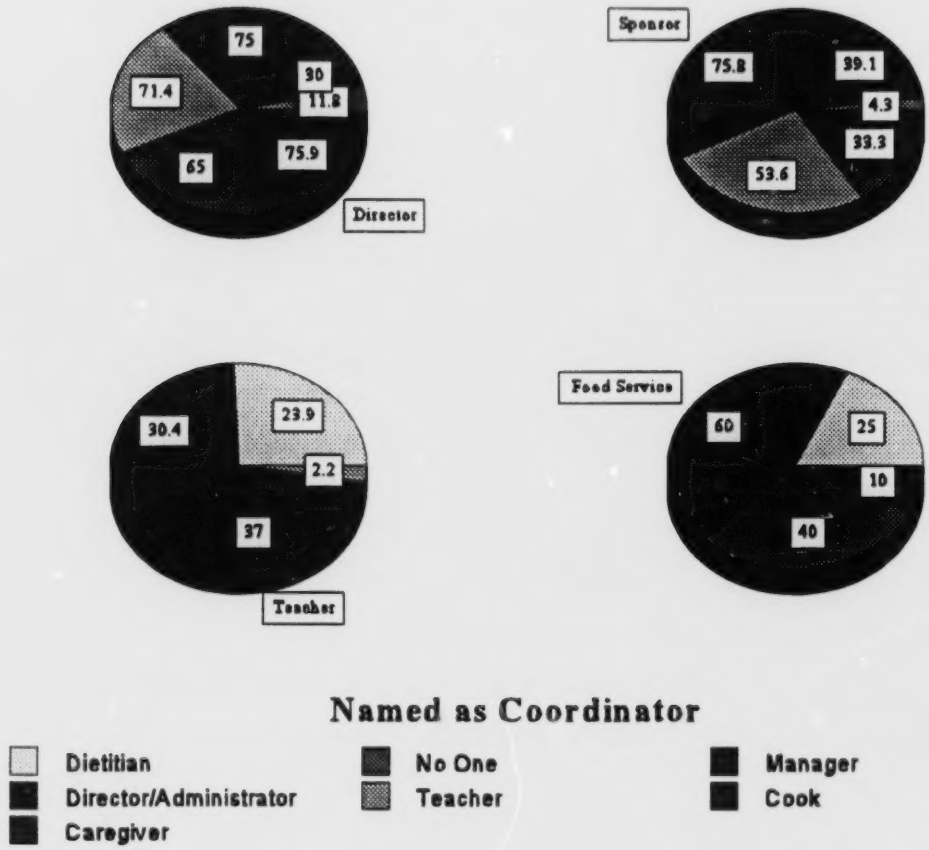



**Figure 19. Individual named as nutrition education coordinator as reported by directors, sponsors, teachers, and food service personnel**

Three-fourths of the administrators (sponsors and directors) indicated that they coordinated the nutrition education and activities in the child care program. Over 10% of the directors reported that no one served as nutrition coordinator. Over one-half (60%) of the food service personnel indicated that the director/sponsor coordinated nutrition education; fewer than 40% (37.0%) of the teachers identified the director/sponsor as the coordinator. Both food service personnel (25.0%) and teachers (23.9%) listed the dietitian as the nutrition education coordinator.

Table IV-31 shows the responses of the 28 day care center directors, the 48 day home sponsors, the 55 food service personnel, and the 160 providers on factors that are effective in teaching nutrition.

**Table IV-31. Factors effective in teaching nutrition as reported by directors, sponsors, food service personnel, and providers**

| Effective Factors | Directors Percent | Sponsors Percent | Food Service Percent | Provider Percent |
|---|---|---|---|---|
| Aid from director | 9.5 | 7.5 | 78.6 | 67.4 |
| Aid from cook | 4.8 | 5.0 | 76.0 | 51.6 |
| Identification of key nutrition issues | 4.8 | 12.2 | 42.6 | 57.0 |
| In-service training | 42.9 | 51.2 | 48.0 | 55.0 |
| Nutrition curriculum | 38.1 | 24.4 | 54.6 | 60.0 |

As shown in Table IV-31, both directors and sponsors responded that in-service training was the most effective factor in teaching nutrition. Administrators also selected nutrition curriculum as an effective factor. Food service personnel identified aid from directors as their highest response; providers thought nutrition curriculum to be the most effective factor in teaching nutrition.

Teachers, food service personnel, and providers were asked to rate the effectiveness of forms of assistance in promoting nutrition education. Their responses are recorded in Table IV-32.

**Table IV-32. Effective assistance for nutrition education as reported by teachers, food service personnel, and providers**

| Forms of Assistance | Teacher | Food Service | Provider |
|---|---|---|---|
| Aid from director | 3.84 | 3.93 | 3.37 |
| Aid from teacher | 3.95 | 3.80 | 2.58 |
| Key nutrition information | 2.85 | 2.13 | 2.85 |
| In-service training | 1.79 | 2.40 | 2.75 |
| Nutrition curriculum | 2.21 | 2.73 | 3.45 |

As Table IV-32 shows, on a five-point effectiveness scale, providers reported that aid from the teacher was significantly lower than that for food service personnel. Providers of food service noted that nutrition curriculum was their most valued assistance.

## Effective Methods of Teaching Nutrition

The 28 day care center directors and the 48 day home sponsors were asked to identify the three most effective methods of teaching nutrition to all children. Figure 20 illustrates their responses.

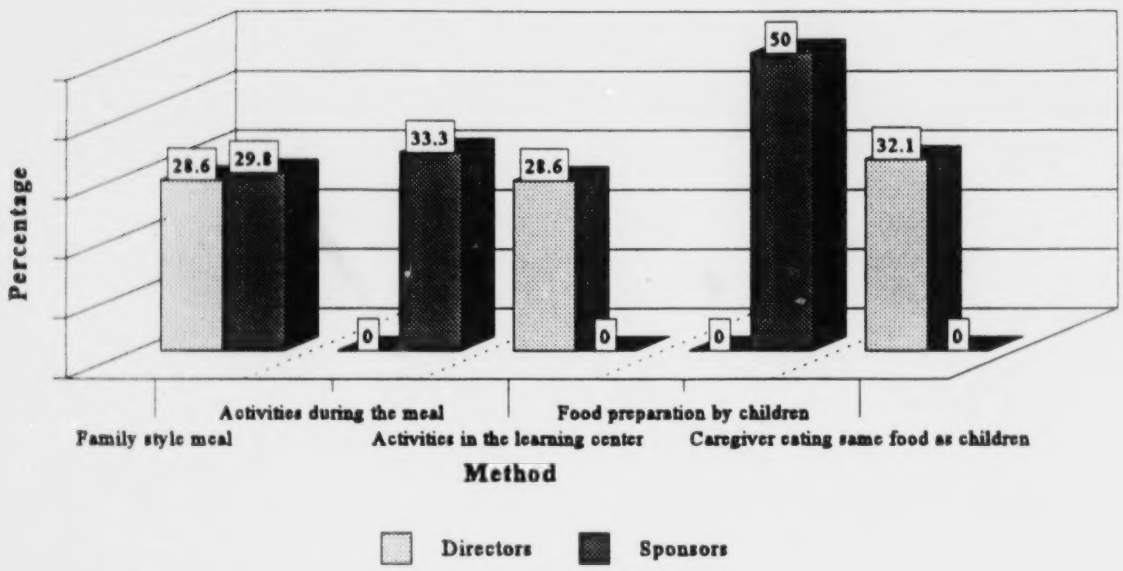



**Figure 20. The three most effective methods of teaching nutrition for all children as reported by directors and sponsors**

According to the data displayed in Figure 20 on effective teaching methods, caregivers should eat identical foods as that served to children; children should be allowed to help prepare food; and learning center activities should include nutrition education. In addition, tasting parties for children should be included.

The 28 directors and the 48 sponsors were then asked to identify the three most effective methods of teaching nutrition to multicultural and/or minority children. These results are displayed in Figure 21.

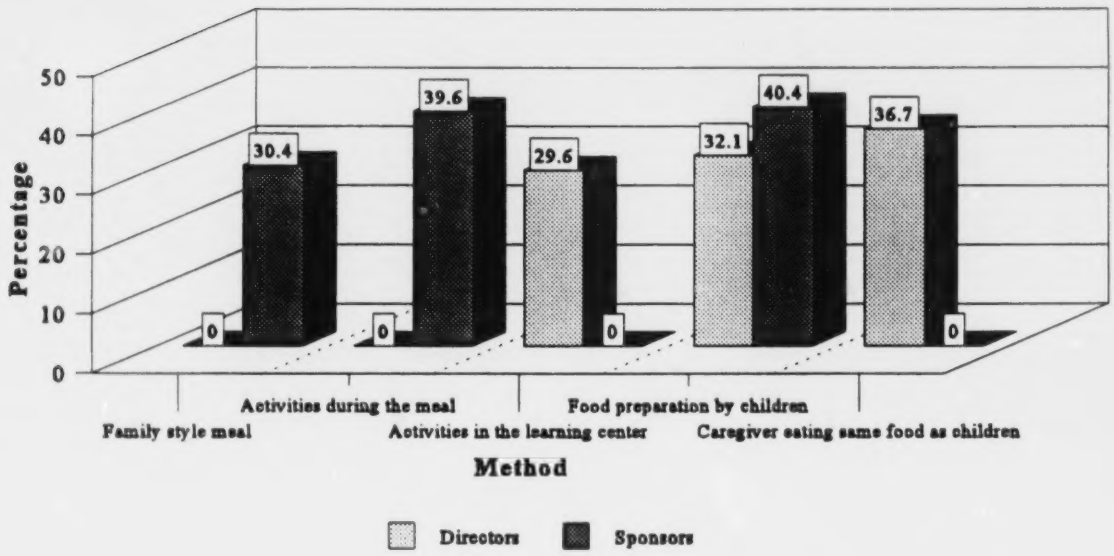



**Figure 21. The three most effective methods of teaching nutrition to multicultural/minority children as reported by directors and sponsors**

Figure 21 identifies methods of teaching nutrition to multicultural and/or minority children identical to those in Figure 20 that were identified for children in general. However, learning center activities and having a tasting party tied for second place in the case of multicultural and/or minority children. Teachers identified tasting parties, activities in the learning center, and food preparation by children as the three most effective methods for teaching nutrition to minority children.

When compared to the directors, the only teaching methods that were the same for all children were food preparation by children and activities in the learning center. The only teaching methods deemed effective by teachers and directors for multicultural/minority children were tasting parties and activities in the learning center.

## Awareness of Problems in Teaching Nutrition Education to Preschool Children

Table IV-33 lists potential problems that inhibit teaching nutrition as reported by the 28 day care center directors, the 48 day home sponsors, the 55 food service personnel, and the 160 providers.

**Table IV-33. Factors that inhibit teaching nutrition as reported by directors, sponsors, food service personnel, and providers**

| Potential problems | Directors | Sponsors | Food Service | Providers |
|---|---|---|---|---|
| | | Percent | | |
| Insufficient funds to support nutrition education | 66.7 | 78.0 | 61.1 | 84.7 |
| Lack of interest among parents, directors & caregivers | 81.5 | 76.9 | 47.1 | 75.7 |
| lack of time to plan, coordinate, implement nutrition education | 80.8 | 78.0 | 62.5 | 42.8 |
| Calendars too full with other activities | 40.0 | 70.0 | 37.5 | 54.5 |
| Shortage of education materials | 68.0 | 77.5 | 56.3 | 60.3 |
| Caregivers do not want to eat with children | 36.0 | 55.0 | 31.3 | 24.2 |
| Family style meal service is messy and/or too slow | 29.2 | 35.0 | 18.8 | 26.2 |

As is apparent from Table IV-33, more directors and sponsors identified possible problems in teaching nutrition than food service personnel and providers. Over four-fifths of the directors indicated that major problems were: (1) lack of interest among parents, directors and caregivers; and (2) lack of time to plan, coordinate and implement nutrition education. Other problems were shortage of education materials (68.0%) and insufficient funds to support nutrition education (66.7%). More than 70% of the sponsors recognized five of the seven problems that could inhibit teaching nutrition. In comparison, food service personnel identified: (1) lack of time to plan, coordinate and implement nutrition education; and (2) insufficient funds to support nutrition education. Providers also indicated lack of funds and lack of interest of parents, directors, and caregivers as impediments to nutrition education. Another commonality was shortage of educational materials.

## Recommendations

- Communication is needed among administrators (directors and sponsors) and educators (teachers and providers) to strengthen the knowledge base on the availability of current resources on nutrition education.

- Identification of the role and responsibilities of the teacher should be shared with all involved professionals.

- Nutrition education training should be offered to administrators, in order to strengthen their nutrition knowledge, food choices, and the holistic approach to nutrition education in the child

care sites. Leadership by the administrators is needed to coordinate and support nutrition education among the preschool children and their parents.

- Administrators should be trained on how to involve teachers and food service personnel in nutrition education and how to involve children in the learning process.

- More open communication is recommended in promoting nutrition education in children's learning and eating areas. Perceptions of administrators, educators, and food service managers appear to need consensus and efforts need to be taken to build a team approach to promote nutrition education.

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# APPENDIX

# APPENDIX A

## Goals and Indicators

## The Goals and Indicators as Criteria for Nutrition Knowledge, Attitudes and Behaviors

The criteria numbers are consistent among all target populations; however, not all target populations have the same list of criteria. Therefore, the criteria within a target population may not be consecutively numbered. Following are the final list of the goals and goal indicators related to each target population.

**TARGET POPULATIONS:**

*CHILDREN*

1. GOAL: **The nutrition knowledge of children enables them to comprehend the relationships between food habits, health status, and learning.**

   GOAL INDICATOR:

   **1.1 Nutrition knowledge assessment scores of children on:**
   - 1.1.1 Healthy food choices
   - 1.1.2 Nutrition and health/fitness
   - 1.1.3 Self-responsibility for food selection
   - 1.1.4 Nutrition and learning

2. GOAL: **The nutrition attitudes of children enhance the development of healthy eating habits.**

   GOAL INDICATOR:

   **2.1 Attitude inventory scores of children on:**
   - 2.1.1 Healthy food choices
   - 2.1.2 Nutrition and health/fitness
   - 2.1.3 Self-responsibility for food selection
   - 2.1.4 Nutrition and learning

3. GOAL: **The nutrition behavior of children is consistent with the nutritional goals for the Dietary Guidelines for Americans.**

   GOAL INDICATORS:

   **3.1 Consistency between food intake of children and Dietary Guidelines for Americans**
   - 3.1.1 Healthy food choices

   **3.2 Consistency between food intake of children and Dietary Guidelines for Americans**
   - 3.2.1 Observed food item selection and intake

4. GOAL: **The nutrition knowledge, attitudes and behavior of children have a positive effect on their learning, health, and physical fitness.**

GOAL INDICATORS:

**4.1 Correlation between medical history and nutrition knowledge, attitudes, and behavior of children**

4.1.1 Family history

**4.2 Correlation between health and physical fitness and nutrition knowledge, attitudes, and behavior of children**

4.2.1 Weight in relation to height

4.2.2 Percent body fat (skin folds)

*PARENTS*

5. GOAL: **The nutrition knowledge of parents enables them to comprehend the relationships between food habits, health status, and learning.**

GOAL INDICATOR:

**5.1 Nutrition knowledge assessment scores of parents on:**

5.1.1 Healthy food choices

5.1.2 Nutrition and health/fitness

5.1.3 Self-responsibility for food selection

5.1.4 Nutrition and learning

5.1.5 Nutritional needs

5.1.6 Dietary Guidelines for Americans

5.1.7 Nutritional life/consumer skills

6. GOAL: **The nutrition attitudes of parents enhance the development of healthy eating habits.**

GOAL INDICATOR:

**6.1 Attitude inventory scores of parents on:**

6.1.1 Healthy food choices

6.1.2 Nutrition and health/fitness

6.1.3 Self-responsibility for food selection

6.1.4 Nutrition and learning

6.1.6 Dietary Guidelines for Americans

6.1.10 Nutritional life/consumer skills

7. GOAL: **The nutrition behavior of parents is consistent with the nutritional goals of the Dietary Guidelines for Americans and serves as a model for children's behavior.**

GOAL INDICATOR:

**7.1 Consistency between food choices of parents and Dietary Guidelines for Americans**

7.1.1 Healthy food choices

*EDUCATORS AND PROVIDERS*

8. GOAL: **Teachers' and providers' nutrition knowledge enables them to effectively communicate nutrition concepts to children.**

GOAL INDICATOR:

**8.1 Nutrition knowledge assessment scores of teachers on:**

8.1.1 Healthy food choices
8.1.2 Nutrition and health/fitness
8.1.3 Self-responsibility for food selection
8.1.4 Nutrition and learning
8.1.5 Nutritional needs
8.1.6 Dietary Guidelines for Americans
8.1.8 Food safety/sanitation

9. GOAL: **Teachers' nutrition attitudes enable them to communicate positive nutrition attitudes to children.**

GOAL INDICATOR:

**9.1 Attitude inventory scores of teachers on:**

9.1.1 Healthy food choices
9.1.2 Nutrition and health/fitness
9.1.3 Self-responsibility for food selection
9.1.4 Nutrition and learning
9.1.6 Dietary Guidelines for Americans

10. GOAL: **Teachers model acceptable nutrition behaviors to children**

GOAL INDICATOR:

**10.1 Consistency between food choices of teaches and Dietary Guidelines for Americans**

10.1.1 Healthy food choices

11. GOAL: **Teachers coordinate learning activities and meal time experiences in teaching nutrition to children.**

GOAL INDICATOR:

**11.1 Teachers' responses to questionnaire on:**

- 11.1.1 Administrative support
- 11.1.2 Food service support
- 11.1.3 The eating area as a learning laboratory

*FOOD SERVICE PERSONNEL*

12. GOAL: **The nutrition knowledge of food service personnel enables them to comprehend the relationships between food habits and health status.**

GOAL INDICATOR:

**12.1 Nutrition knowledge assessment scores of food service personnel on:**

- 12.1.1 Healthy food choices
- 12.1.2 Nutrition and health/fitness
- 12.1.3 Self-responsibility for food selection
- 12.1.4 Nutrition and learning
- 12.1.5 Nutritional needs
- 12.1.6 Dietary Guidelines for Americans
- 12.1.7 Nutritional life/consumer skills
- 12.1.8 Food safety/sanitation

13. GOAL: **The nutrition attitudes of food service personnel promote the development of healthy eating habits in children.**

GOAL INDICATOR:

**13.1 Attitude inventory scores of food service personnel on:**

- 13.1.1 Healthy food choices
- 13.1.2 Nutrition and health/fitness
- 13.1.4 Nutrition and learning
- 13.1.6 Dietary Guidelines for Americans

14. GOAL: **The management knowledge of food service personnel will allow them to maximize the available resources of the food service operation.**

GOAL INDICATOR:

**14.1 Management assessment scores of food service personnel on:**

- 14.1.2 Nutrition and menu planning
- 14.1.4 Food production
- 14.1.5 Service
- 14.1.6 Sanitation and safety
- 14.1.7 Food acceptability

15. GOAL: **Food service personnel will plan, procure, prepare and serve nutritious, good tasting meals and snacks which meet the appropriate USDA Meal Pattern and the Dietary Guidelines for Americans.**

GOAL INDICATORS:

- **15.1 Analysis of food service menu**
- **15.2 Observed operational practices**

16. GOAL: **Child care centers offer meals which reinforce nutrition concepts taught in the child care program.**

GOAL INDICATOR:

- **16.1 Food service personnel responses to questionnaire on:**
  - 16.1.1 Administrative support
  - 16.1.2 Educator support of food service
  - 16.1.3 Food service personnel coordination with teachers to reinforce nutrition concepts

*ADMINISTRATORS: DIRECTORS/SPONSORS*

17. GOAL: **Directors/Sponsors support teachers and food service personnel in the promotion of nutrition knowledge, attitudes, and behavior and acknowledge the relationships of health, physical fitness, and learning.**

GOAL INDICATORS:

- **17.1 Assessment scores of directors'/sponsors' knowledge of:**
  - 17.1.1 Relationships between nutrition, health, physical fitness, and learning
- **17.2 Attitude inventory scores of directors/sponsors on nutrition and nutrition education**
- **17.3 Administrative problems related to nutrition and nutrition education**
- **17.4 Directors'/sponsors' response to questionnaire on:**
  - 17.4.1 Reported administrative support of nutrition education
  - 17.4.2 Reported administrate support of food service
  - 17.4.3 Coordination of nutrition education by teachers and food service personnel

Martin, R.E., and Hoover, L.C. (1993). Final Annual Report of Nutrition Education and Training Needs Assessment Project for Federal Fiscal Year 1993, (pp. 10-14), Austin, TX: Department of Human Services.

## APPENDIX B

## INSTRUMENTS DEVELOPED

## FOR CHILDREN

- **Demographics, Questionnaires, Key**
- **Observed Food Intake**
- **Health and Physical Fitness**

## APPENDIX B

## SECTION 1

**Demographics**

**Questionnaires**

- **Nutrition Knowledge**
- **Attitudes**
- **Food Choices**

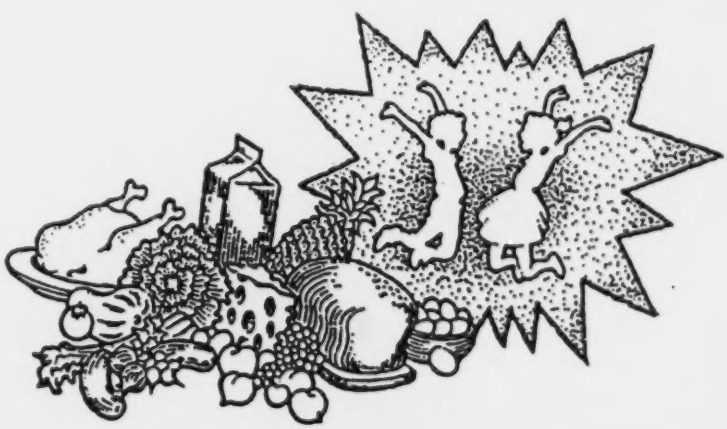
**Key**

- **Goal Indicators**
- **Answers**

Name of Child:_____

Address:_____
Street/Box Number City State Zip

Name of Child Care:_____



**AN ASSESSMENT OF**
**NUTRITION EDUCATION & TRAINING**
**NEEDS IN TEXAS**

**Children**

## CHILD'S QUESTIONNAIRE

**NAME:**_____

**DAY CARE FACILITY:**_____

**DATE:**_____

### DEMOGRAPHICS

Directions: Please read these questions to each child. Record answers directly on this form.

1. You are a:
   1. girl
   2. boy

2. What is your race?
   1. African-American
   2. American Indian or Alaska Native
   3. Asian or Pacific Islander
   4. Hispanic/Spanish
   5. White

3. How old are you?
   1. 2 years old
   2. 3 years old
   3. 4 years old
   4. 5 years old
   5. No response

NAME OF CHILD_____

MALE_____ FEMALE_____

NAME OF DAYCARE_____

DATE_____

# ORAL NUTRITION KNOWLEDGE ASSESSMENT *

## THREE AND FIVE YEAR OLD CHILDREN

1. **TO DO WELL IN DAYCARE YOU NEED TO EAT**

   **Breakfast or Supper**

2. **FOR YOUR BODY THE BEST BREAKFAST IS:**

   **Toast or Fruit, milk, cereal**

3. **YOUR BODY NEEDS THE MOST ENERGY FROM FOOD TO:**

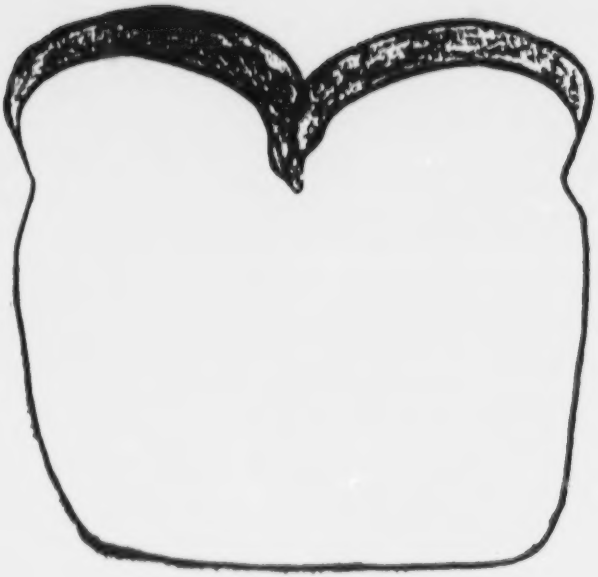
   **Run or Sleep**

4. **THE BEST SNACK FOR YOUR BODY IS:**

   **A Peach or A piece of peach pie**

* Recording form for responses for each child.
Each question was printed on an 8 1/2" x 11" sheet of paper. On the reserve side, color sketches of "A" and "B" were portrayed. These individual questions were laminated. For oral administration, the researcher read each question individually to the child in a private setting.

Z
Z
Z
Z



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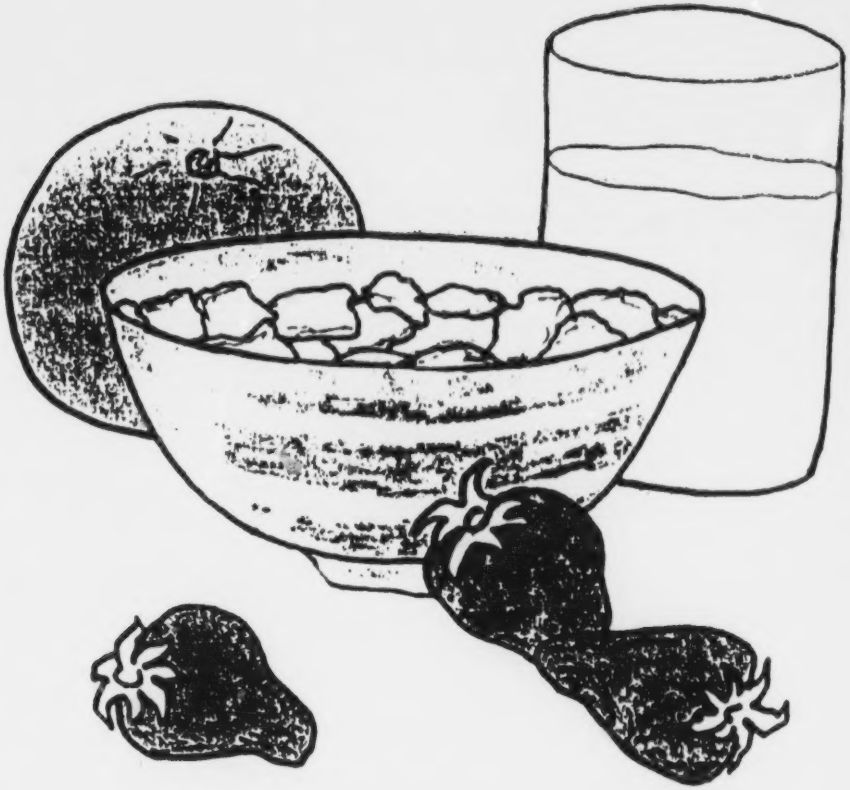

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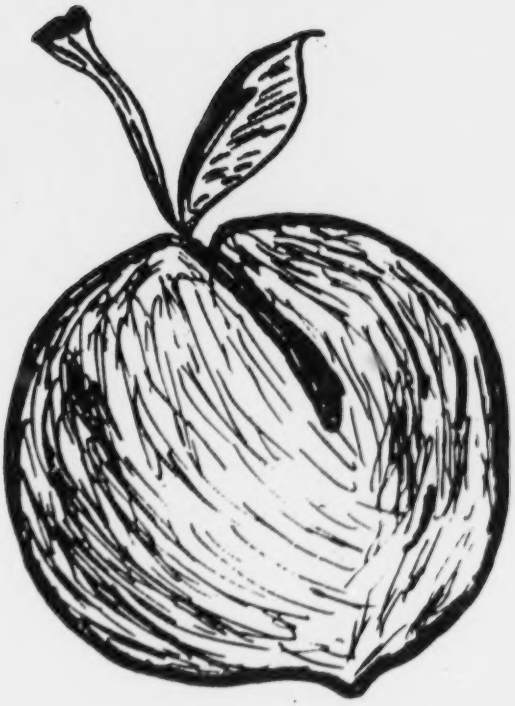
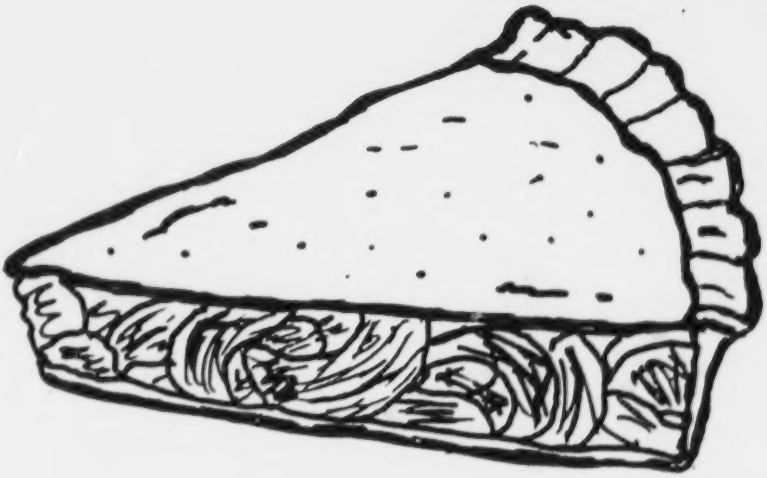




# ORAL NUTRITION KNOWLEDGE ASSESSMENT

FIVE YEAR OLD CHILDREN

5. WHAT SHOULD YOU DRINK TO HAVE STRONG BONES AND TEETH?

Soda Pop or Milk

6. THE BEST SNACK YOU CAN CHOOSE IS:

Grapes or Lollipop

7. WHO SHOULD DECIDE HOW MUCH YOU EAT?

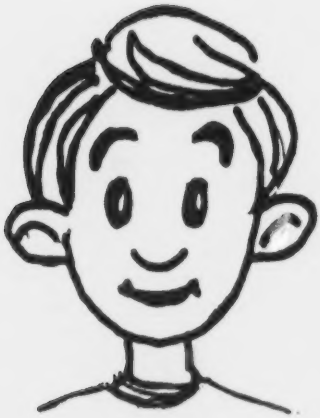
Child or Parent(s)

8. AFTER A GOOD BREAKFAST HOW WILL YOU FEEL AT DAYCARE?

Tired or Alive

Cola

128



NAME:_____

DAY CARE FACILITY:_____

DATE:_____

## ORAL NUTRITION ATTITUDE ASSESSMENT

DIRECTIONS: USE THE "HAPPY" FACE (yes) OR THE "FROWN" FACE (no) FOR THE CHILDREN TO ANSWER.

1. I need to eat many kinds of foods.

2. Walking and running do nothing to help my body.

3. Snacks can spoil my appetite for meals.

4. I need to eat food whenever I am hungry.

5. I like to help prepare food for meals.

6. My parent/guardian helps me decide what to eat.

7. Candy and sweets are good for me.

NAME:_____

DAY CARE FACILITY:_____

DATE:_____

**ORAL FOOD CHOICE ASSESSMENT (Food Models)***

CIRCLE ONE ANSWER FOR EACH QUESTION:

1. Which one would you choose for breakfast?
   1. whole wheat bread
   2. sweet roll

2. Which one would you choose for lunch?
   1. hamburger
   2. grilled chicken

3. Which one would you eat?
   1. Baked potato
   2. French fries

4. Which would you want with a cookie?
   1. chocolate milk
   2. skim milk

5. Which vegetable would you choose?
   1. Broccoli
   2. Corn

6. Which snack would you choose?
   1. Candy bar
   2. Banana

* Professional food models were used for each question.

Key for Questionnaire - 3 & 5 year olds

| GOAL/Criteria | Question Number (Answer Number) |
|---|---|
| NUTRITION KNOWLEDGE (3 & 5 year olds) | |
| • healthy food choices | 2(2) |
| • nutrition and health/fitness | 3(1) |
| • self-responsibility for food selection | 4(1) |
| • nutrition and learning | 1(1) |
| NUTRITION KNOWLEDGE (5 year old only) | |
| • healthy food choices | 5(2) |
| • nutrition and health/fitness | 6(1) |
| • self-responsibility for food selection | 7(1) |
| • nutrition and learning | 8(2) |
| NUTRITION ATTITUDE | |
| • healthy food choices | +1 |
| • nutrition and health/fitness | -2, -3, +7 |
| • self-responsibility for food selection | +4, -6 |
| • nutrition and learning | -5 |
| NUTRITION BEHAVIORS | |
| Food Choices | |
| • sugar | 1(1); 6(2) |
| • sodium | 3(1) |
| • fat | 2(2); 4(2) |
| • fiber | 5(1) |

## APPENDIX B

## SECTION 2

### Observed Food Intake

- Directions
- USDA Breakfast Pattern
- USDA Lunch Pattern
- USDA Snack Pattern -- Form I
- USDA Snack Pattern -- Form II

## OBSERVED FOOD INTAKE

1. Identify students with parental permission for name tags.

2. Evaluate the menu items to be served on the day of the site visit.

3. Determine the standard serving size for each menu item.

4. At the serving area, tape the child's name tag to the Observed Food Intake Form (OFI).

5. Evaluate the amount of food eaten and record this information on the child's OFI. (Be sure that the child's full name is on the OFI).

NAME:_____

DAY CARE FACILITY_____

## OBSERVED FOOD INTAKE
## BREAKFAST PATTERN
## AGE 3 and 5 CHILDREN

| BREAKFAST Food Components | | Standard Ages 3 and 5 | Food Intake |
|---|---|---|---|
| Milk | Milk, fluid | 3/4 CUP | 0 1/4 1/2 3/4 A |
| Vegetables and Fruits | Vegetable(s) and/or fruit(s) or | 1/2 cup | 0 1/4 1/2 3/4 A |
| | Full strength vegetable or fruit juice (to meet 1/2 requirement) or | 1/2 cup | 0 1/4 1/2 3/4 A |
| | An equivalent quantity of any combination of vegetable(s), fruit(s), and juice | 1/2 cup | 0 1/4 1/2 3/4 A |
| Bread and Bread Alternates | Bread[2] or | 1/2 slice | 0 1/4 1/2 3/4 A |
| | Cornbread, biscuits, rolls, muffins, etc.[2] or | 1/2 serving | 0 1/4 1/2 3/4 A |
| | Cold dry cereal[3] or | 1/3 cup or 1/2 oz. | 0 1/4 1/2 3/4 A |
| | Cooked pasta or noodle products[2] or | 1/4 cup | 0 1/4 1/2 3/4 A |
| | Cooked cereal grains[3] or | 1/4 cup | 0 1/4 1/2 3/4 A |
| | An equivalent quantity of any combination of bread/bread alternate | 1/4 cup | 0 1/4 1/2 3/4 A |

[1]All serving sizes are based on a standard measuring cup
[2]Must be whole grain or enriched
[3]Must be whole grain, enriched, or fortified

NAME: _____

DAY CARE FACILITY: _____

## OBSERVED FOOD INTAKE
## LUNCH PATTERN
## AGE 3 AND 5 CHILDREN

| LUNCH Food Components | | Standard Ages 3 and 5 | Child's Food Intake |
|---|---|---|---|
| Milk | Milk, fluid | 1/2 cup | 0 1/4 1/2 3/4 All |
| Vegetables and Fruits | Vegetable(s) and/or fruit(s)[1] | 1/2 cup total | 0 1/4 1/2 3/4 All |
| Bread and Bread Alternates | Bread[2] or | 1/2 slice | 0 1/4 1/2 3/4 All |
| | Cornbread, biscuits, rolls, muffins, etc.[2] or | 1/2 serving | 0 1/4 1/2 3/4 All |
| | Cold dry cereal[3] or | 1/3 cup or 1/2 oz. | 0 1/4 1/2 3/4 All |
| | Cooked pasta or noodle products[2] or | 1/4 cup | 0 1/4 1/2 3/4 All |
| | Cooked cereal grains[3] or | 1/4 cup | 0 1/4 1/2 3/4 All |
| | An equivalent quantity of any combination of bread/bread alternate | 1/4 cup | 0 1/4 1/2 3/4 All |
| Meat and Meat Alternates | Lean meat/poultry/fish or | 1 1/2 oz. | 0 1/4 1/2 3/4 All |
| | Cheese or | 1 1/2 oz. | 0 1/4 1/2 3/4 All |
| | Eggs or | 1 egg | 0 1/4 1/2 3/4 All |
| | Cooked dry beans/peas or | 3/8 cup | 0 1/4 1/2 3/4 All |
| | Peanut butter/soynut butter/other nut seed combinations of butters/Peanuts/soynuts/ tree nuts/seeds or | 3 tablespoons | 0 1/4 1/2 3/4 All |
| | An equivalent quantity of any combination of the above meat/meat alternates | 3/4 oz. = 50% | 0 1/4 1/2 3/4 All |

[1]Must serve 2 or more kinds of vegetable and/or fruit. (Full strength vegetable or fruit juice may be counted to meet not more than 1/2 of requirement.

[2]Must be whole grain or enriched

[3]Must be whole grain, enriched, or fortified

NAME:_____

DAY CARE FACILITY:_____

## OBSERVED FOOD INTAKE
## FORM 1
## SNACKS
## SUPPLEMENTALS - AM or PM

| Food Components | | Standard Ages 3 and 5 | Food Intake |
|---|---|---|---|
| Milk | Milk, fluid | 1/2 cup | 0 1/4 1/2 3/4 All |
| Vegetables and Fruits[1] | Vegetable(s) and/or fruit(s) or | 1/2 cup | 0 1/4 1/2 3/4 All |
| | Full strength vegetable or fruit juice (to meet 1/2 of requirement) or an equivalent quantity of any combination of vegetable(s), fruit(s), and juice | 1/2 cup | 0 1/4 1/2 3/4 All |
| Bread and Bread Alternates | Bread[2] or | 1/2 slice | 0 1/4 1/2 3/4 All |
| | Cornbread, biscuits, rolls, muffins, etc.[2] or | 1/2 serving | 0 1/4 1/2 3/4 All |
| | Cold dry cereal[3] or | 1/3 cup or 1/2 oz. | 0 1/4 1/2 3/4 All |
| | Cooked pasta or noodle products[2] or | 1/4 cup | 0 1/4 1/2 3/4 All |
| | Cooked cereal grains[3] or | 1/4 cup | 0 1/4 1/2 3/4 All |
| | An equivalent quantity of any combination of bread/bread alternate | 1/4 cup | 0 1/4 1/2 3/4 All |

[1]Must serve 2 or more kinds of vegetable and/or fruit. (Full strength vegetable or fruit juice may be counted to meet not more tha
1/2 of requirement.
[2]Must be whole grain or enriched
[3]Must be whole grain, enriched, or fortified

NAME:_____

DAY CARE FACILITY:_____

## OBSERVED FOOD INTAKE
## FORM 2
## SNACKS
## SUPPLEMENTALS - AM or PM

| Food Components | | Standard Ages 3 and 5 | Food Intake |
|---|---|---|---|
| Meat and Meat Alternates | Lean meat or poultry or fish | 1 1/2 oz. | 0 1/4 1/2 3/4 All |
| | or | | |
| | Cheese or | 1 1/2 oz. | 0 1/4 1/2 3/4 All |
| | Eggs or | 1 egg | 0 1/4 1/2 3/4 All |
| | Cooked dry beans or peas | 3/8 cup | 0 1/4 1/2 3/4 All |
| | or | | |
| | Peanut butter or soynut butter other nut or seed combinations of butters/ | | |
| | Peanuts/soynuts/tree nuts/ seeds or | 3 tablespoons | 0 1/4 1/2 3/4 All |
| | Yogurt - Plain/sweetened/ flavored or | 3/4 oz. = 50% | 0 1/4 1/2 3/4 All |
| | An equivalent quantity of any combination of the above meat/meat alternates | 2 oz. or 1/4 cup | 0 1/4 1/2 3/4 All |

[1]Cannot be used to satisfy meat/meat alternate requirement.

## APPENDIX B

## SECTION 3

**Health and Physical Fitness**

- **Family Medical History**
- **Instructions for Physical Examination**
- **Physical Assessment**

## FAMILY MEDICAL HISTORY

Please fill in all information and return it with your child to the day care facility. All information will be treated with confidence and no information about your child or your family will be released to anyone without your permission. Thank you very much for your help about the nutrition level of Texas children.

PLEASE PRINT

Child's Name:_____ S/S#_____
(Last Name) (First Name) (Middle)

Birth Date:_____ _____ _____ Age:_____
(Day) (Month) (Year)

Circle One: Male Female

Circle One: African-American | Mexican-American | Asian/Pacific Islander | American Indian/Alaskan | White

Has this child ever had a serious illness or any chronic health problem? Yes___ No___

Is so, what?_____

Does this child have any handicap? Yes___ No___ If so, what?_____

How many teeth does your child have?_____

How many hours each day does your child usually watch T.V.? (Circle one choice)

None
Less than one hour
One hour
1 1/4 - 2 hrs
2 1/4 - 3 hours
3 1/4 - 4 hours
More than 4 hours

Does your child take: Vitamins?_____ Fluoride drops?_____

Any medicine on a regular basis? Yes___ No___ If yes, what?_____

Do you think your child eats well? Yes____ No____

Does your child drink milk? Yes____ No____

How tall is this child's mother? _____ft. _____in. Weight? _____lb.

How tall is this child's father? _____ft. _____in. Weight? _____lb.

PLEASE RETURN TO YOUR DAY CARE FACILITY

10/10/94

## INSTRUCTIONS FOR PHYSICAL EXAM

General:

- Print child's name, I.D.number, and child care facility on both history and examination sheets.
- Enter birth date on both forms if that information is available in the child care facility records.
- Send both the history from and examination form home so that parent can complete history and can sign permission for examination.

Weight:

- Weight may be recorded in pounds/ounces or in kilograms.

Height:

- While recumbent height is more accurate in children less than five years, all height measurements for this study will be recorded as standing height. The standing height is measured as the child stands erect with heels, buttocks, upper part of the back, and occiput placed against a vertical upright. The heels should be close together and the arms should hang naturally at the sides. The external auditory meatus and the lower border of the orbit should be in a plane parallel to the floor. A wooden headpiece with two faces at right angles may be placed firmly on the head against a 2-meter or 7-foot measuring scale attached to the vertical surface against which the child is positioned. Height may be recorded in feet/inches or in centimeters.

Body Type:

- Variations in body forms of normal persons may be expressed by differences in physique. There are three basic physique types: ectomorphic, mesomorphic, and endomorphic. The ectomorph is characterized by relative linearity, light bone structure, and small mass with respect to body length. The extreme of this is labeled "Very Thin: on the exam sheet. At the other end of the scale, the endomorph is characterized by a relatively stocky build with large amounts of soft tissue. The extreme on this scale is "Obese". The physique of the mesomorph (pictured on form) is between the two extremes and is often relatively muscular. Simply place an "X" in the appropriate spot on the scale.

Caliper Measures:

- Measurement of skin fold thickness (SFT) provides a rough estimate of body composition. Triceps SFT is measured over the posterior surface of the triceps of the left arm by calipers placed at a point halfway between the acromion and the olecranon as the arm hangs vertically in a relaxed fashion at the patient's side. Values obtained may be converted to estimates of body fat using conversion tables, such as the attached table developed by Tanner and Whitehouse.

# PERCENTILES*

(Triceps skinfold measurements based on data obtained using Lange skinfold calipers on white subjects included in the Ten-State Nutrition Survey, 1968-1970.)

**Interpretation**

**Skinfold measurements between the 15th and 85th percentiles are probably within normal limits for age and sex. Those greater than the 95th percentile may be considered representative of obesity, particularly when weight for length or stature also exceeds the 95th percentile.**

* Frisancho AR: Triceps skinfold and upper arm muscle size norms for assessment of nutritional status. *Am J Clin Nutr* 27:1052-1058, 1974.

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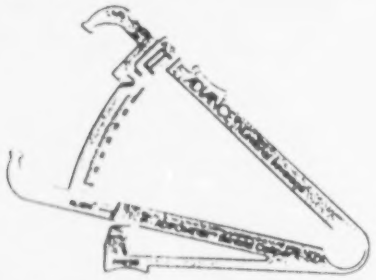
The Adipometer™ skinfold caliper is scientifically designed to provide accurate measurements with relative ease.
The handy size of the Adipometer permits convenient storage, and it may be carried in a shirt or coat pocket.



**The Adipometer™ skinfold caliper is provided as a service of Ross Laboratories, the makers of Advance® Nutritional Beverage.**


| AGE (years) | MALES | | | | | FEMALES | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | PERCENTILES(mm) | | | | | PERCENTILES(mm) | | | | |
| | 5th | 15th | 50th | 85th | 95th | 5th | 15th | 50th | 85th | 95th |
| Birth- | 4 | 5 | 8 | 12 | 15 | 4 | 5 | 8 | 12 | 13 |
| 0.5- | 5 | 7 | 9 | 13 | 15 | 6 | 7 | 9 | 12 | 15 |
| 1.5- | 5 | 7 | 10 | 13 | 14 | 6 | 7 | 10 | 13 | 15 |
| 2.5- | 6 | 7 | 9 | 12 | 14 | 6 | 7 | 10 | 12 | 14 |
| 3.5- | 5 | 6 | 9 | 12 | 14 | 5 | 7 | 10 | 12 | 14 |
| 4.5- | 5 | 6 | 8 | 12 | 16 | 6 | 7 | 10 | 13 | 16 |
| 5.5- | 5 | 6 | 8 | 11 | 15 | 6 | 7 | 10 | 12 | 15 |
| 6.5- | 4 | 6 | 8 | 11 | 14 | 6 | 7 | 10 | 13 | 17 |
| 7.5- | 5 | 6 | 8 | 12 | 17 | 6 | 7 | 10 | 15 | 19 |
| 8.5- | 5 | 6 | 9 | 14 | 19 | 6 | 7 | 11 | 17 | 24 |
| 9.5- | 5 | 6 | 10 | 16 | 22 | 6 | 8 | 12 | 19 | 24 |
| 10.5- | 6 | 7 | 10 | 17 | 25 | 7 | 8 | 12 | 20 | 29 |
| 11.5- | 5 | 7 | 11 | 19 | 26 | 6 | 9 | 13 | 20 | 25 |
| 12.5- | 5 | 6 | 10 | 18 | 25 | 7 | 9 | 14 | 23 | 30 |
| 13.5- | 5 | 6 | 10 | 17 | 22 | 8 | 10 | 15 | 22 | 28 |
| 14.5- | 4 | 6 | 9 | 19 | 26 | 8 | 11 | 16 | 24 | 30 |
| 15.5- | 4 | 5 | 9 | 20 | 27 | 8 | 10 | 15 | 23 | 27 |
| 16.5- | 4 | 5 | 8 | 14 | 20 | 9 | 12 | 16 | 26 | 31 |
| 17.5-24.4 | 4 | 5 | 10 | 18 | 25 | 9 | 12 | 17 | 25 | 31 |

## PHYSICAL ASSESSMENT

NAME:_____ MALE____ FEMALE____

SOCIAL SECURITY NUMBER ___-___-___ AGE:_____

BIRTH DATE:_____

DAY CARE FACILITY_____

Ethnic Group:

African American _____ Hispanic _____
Asian/Pacific Islander _____ American Indian/Alaskan _____
White _____ Other_____

Weight: _____Lbs. Percentile:_____

Height: _____Ft. _____In. Percentile:_____

Body type:

_____

Very thin Moderately Thin Normal Moderately Obese Obese

Condition of Teeth: Excellent_____ Average_____ Poor_____

Caliper: Triceps measure: (1)_____ (2)_____ Percentile:_____

Subscapular measure:(1)_____ (2)_____ Percentile:_____

Name of Examiner:_____ Date of examination:_____

IMMUNIZATIONS:

DPT/TD:_____ MUMPS:_____

POLIO:_____ RUBELLA:_____

MEASLES VACCINE: RUBEOLA:_____

FOOD ALLERGIES:_____



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## APPENDIX C

## INSTRUMENT DEVELOPED FOR PARENTS

**Demographics**

**Questionnaire (English and Spanish versions)**

- **Nutrition Knowledge**
- **Nutrition Attitudes**
- **Food Choices**

**Key**

- **Goal Indicators**
- **Answers**



16b

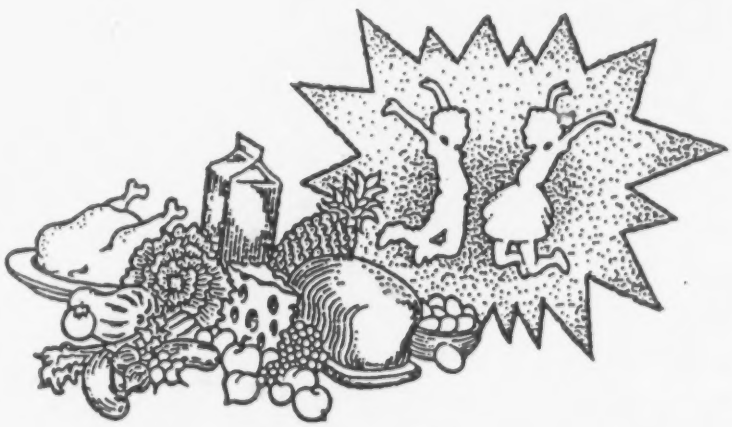
Your Name:_____
Last First

Child's Name:_____
Last First

Child's Social Security No.:___-___-____ Child's Sex:__Male__Female

Day Care Center Name:_____

Town/City:_____



**AN ASSESSMENT OF**
**NUTRITION EDUCATION & TRAINING**
**NEEDS IN TEXAS**

**Parent or Guardian**

## DEMOGRAPHICS

Directions: Please answer the following questions by circling the number in front of the appropriate response.

1. Your sex is:
   1. female
   2. male

2. Your ethnic background:
   1. African-American
   2. American Indian or Alaska Native
   3. Asian or Pacific Islander
   4. Hispanic/Spanish
   5. White

3. Your age is:
   1. Under 19 years
   2. 20 - 29 years
   3. 30 - 39 years
   4. Over 40 years
   5. No response

4. Your relationship to the child is:
   1. Father
   2. Mother
   3. Foster parent - father
   4. Foster parent - mother
   5. Grandfather
   6. Grandmother

5. Your marital status is:
   1. Married or living with partner
   2. Single

6. Your educational background is:
   **(CIRCLE the HIGHEST earned)**
   1. Less than 8th grade
   2. Grade 9 - 11
   3. High School diploma or GED
   4. Technical or associate degree
   5. College degree
   6. Graduate degree

7. Your formal education in nutrition includes the study of nutrition in:
   1. junior high
   2. high school
   3. college as part of another course
   4. a college course(s) in nutrition
   5. Specify number of college credit hours in nutrition, if applicable _____

8. Your employment status is:
   1. Employed full or part-time
   2. Unemployed

9. Your participation in the Food Assistance Program is:
   1. USDA Food Stamps
   2. WIC
   3. Commodity supplemental foods
   4. Other food assistance

10. Number of people living in your residence (related/unrelated).
    _____

11. Household income (before taxes or other deductions):
    (only give amount for ONE pay period)
    One week_____
    Two weeks _____
    One Month _____
    One Year _____

12. Would you like to know more about nutrition?
    1. Yes
    2. No

13. Would you like to know more about:
    **(CIRCLE YES OR NO FOR EACH RESPONSE)**

| | |
|---|---|
| • consumer skills | 1. Yes 2. No |
| • dietary guidelines | 1. Yes 2. No |
| • food preferences | 1. Yes 2. No |
| • food safety/sanitation | 1. Yes 2. No |
| • food traditions | 1. Yes 2. No |
| • function of nutrients to maintain health | 1. Yes 2. No |
| • healthy food choices | 1. Yes 2. No |
| • nutrition and fitness | 1. Yes 2. No |
| • nutritional needs | 1. Yes 2. No |
| • self-responsible choices | 1. Yes 2. No |

    other, please specify_____

14. If you were taking part in nutrition education, which training format would you prefer?
    **(CIRCLE ONLY ONE)**
    1. Group discussion
    2. In-service
    3. Independent study
    4. Lecture
    5. Panel discussion
    6. Video cassette/media
    7. Workshop

15. Should nutrition be taught at the day care center?
    1. Yes
    2. No

16. If your child(ren) participates in the day care center food program, are you satisfied?
    1. Yes
    2. No

16,

17. If you responded NO, the main reason is:
    1. Too costly
    2. Food not appealing
    3. Too much starch and sugar in food
    4. Too many calories

    Other, please specify_____

## NUTRITION KNOWLEDGE ASSESSMENT

Directions: For each item draw a circle around the number of the **best** (most correct) answer.

1. Children who eat less food than is necessary will likely have:
    1. decreased mental and social development
    2. decreased moral and physical development
    3. increased mental and social development
    4. increased moral and physical development

2. The body needs SODIUM to:
    1. balance body fluids
    2. build red blood cells
    3. help fight diseases
    4. strengthen teeth and bones

3. The food highest in CHOLESTEROL is:
    1. peanuts
    2. vegetables
    3. whole grains
    4. whole milk

4. The two most common nutrients lacking in American diets are:
    1. calcium and iron
    2. calcium and phosphorous
    3. vitamin C and sodium
    4. vitamin C and sugar

5. The Dietary Guidelines for Americans include all the following EXCEPT:
    1. limit dairy products
    2. maintain healthy weight
    3. use sodium in moderation
    4. use sugars in moderation

6. To prepare fresh or frozen vegetables to conserve nutrients:
    1. boil covered with water 15-20 minutes
    2. cook in a little water for 5-10 minutes
    3. cook covered with water until tender
    4. simmer in butter sauce for 15 minutes

7. The BEST way to improve an inadequate diet is to:
   1. increase foods that are highly fortified
   2. increase the variety of food intake
   3. take an all-round mineral supplement
   4. take an all-round vitamin supplement

8. A long-term effect of eating many foods high in SUGAR may be:
   1. diabetes mellitus
   2. high blood pressure
   3. obesity
   4. petit seizures

9. People should choose the food they eat to:
   1. balance their daily intake
   2. check for high energy foods
   3. eat and watch television
   4. eat foods that they like

10. Low mental development and low physical activity of children is largely due to lack of:
   1. Calcium
   2. Iron
   3. Vitamin C
   4. Vitamin E

11. For a healthy diet, I would eat:
   1. a variety of foods
   2. frequent snack foods
   3. only fresh foods
   4. only fortified foods

12. To save money spent on food, one needs to buy:
   1. gourmet brands
   2. national brands
   3. specialty brands
   4. store brands

13. A major benefit of FIBER is that it:
   1. does not cost very much
   2. helps prevent frequent colds
   3. helps prevent cancer
   4. is found in all foods

14. If we are NOT careful about what we eat, we may have problems with:
   1. food expenses
   2. frequent illness
   3. health information
   4. the food chain

## NUTRITION ATTITUDE ASSESSMENT

Directions: Please CIRCLE the number that best describes how you feel about each of the following statements.

The value 5 represents "strongly agree"; 4 represents "agree"; 3 represents "unsure"; 2 represents "disagree"; and 1 represents "strongly disagree".

| | Strongly Agree | Agree | Unsure | Disagree | Strongly Disagree |
|---|---|---|---|---|---|
| 1. Good nutrition is important to a child's ability to learn. | 5 | 4 | 3 | 2 | 1 |
| 2. I am not interested in nutrition. | 5 | 4 | 3 | 2 | 1 |
| 3. What I like (and do not like) to eat makes a difference with the food I serve. | 5 | 4 | 3 | 2 | 1 |
| 4. People need to eat a variety of vegetables, fruits and grains each day. | 5 | 4 | 3 | 2 | 1 |
| 5. I like to serve new foods to my family. | 5 | 4 | 3 | 2 | 1 |
| 6. Breakfast is the most important meal of the day. | 5 | 4 | 3 | 2 | 1 |
| 7. Maintaining a healthy weight depends on food eaten and exercise. | 5 | 4 | 3 | 2 | 1 |
| 8. The foods I eat now will affect my future health. | 5 | 4 | 3 | 2 | 1 |
| 9. How I eat has little influence on my child's eating habits. | 5 | 4 | 3 | 2 | 1 |
| 10. Eating breakfast makes a difference in a child's daily work and play. | 5 | 4 | 3 | 2 | 1 |
| 11. It is important to lower the fat in my diet. | 5 | 4 | 3 | 2 | 1 |
| 12. Children should be able to eat food at any time. | 5 | 4 | 3 | 2 | 1 |

## FOOD CHOICE ASSESSMENT

Directions: You will answer each of the following questions TWICE. In the first column, place the number of the response which indicates the choice you would make in the presence of your child. In the second column, place the number of the response which indicates the choice you would make if your child was NOT present.

| Child is present | Child is NOT present | | |
|---|---|---|---|
| ____ | ____ | 1. | Which one would you select for a snack?<br>1. blueberry muffin<br>2. candy bar<br>3. frosted cupcake<br>4. orange wedges |
| ____ | ____ | 2. | Which one would you choose to eat?<br>1. banana split<br>2. chocolate sundae<br>3. ice cream cone<br>4. juice bar |
| ____ | ____ | 3. | Which bread would you use to make a sandwich?<br>1. french bread<br>2. hamburger bun<br>3. white bread<br>4. whole wheat bread |
| ____ | ____ | 4. | If you do consume beer, how many beers would you drink per day?<br>1. none<br>2. 1-2 beers<br>3. 3-4 beers<br>4. 5 beers or more |
| ____ | ____ | 5. | Which beverage would you choose to drink with breakfast?<br>1. Koolaid<br>2. milk shake<br>3. orange juice<br>4. soft drink |

| Child is present | Child is NOT present | | |
|---|---|---|---|
| ____ | ____ | 6. | Which one of the following would you select for a snack?<br>1. potato chips<br>2. pretzels<br>3. tortilla chips<br>4. unsalted popcorn |
| ____ | ____ | 7. | Which one of the following would you select for breakfast?<br>1. buttered biscuit<br>2. dry toast with jam<br>3. jelly doughnut<br>4. waffle with syrup |
| ____ | ____ | 8. | Which one of the following snacks would you choose?<br>1. cheese puffs<br>2. popcorn<br>3. potato chips<br>4. pretzels |
| ____ | ____ | 9. | Which beverage would you select to drink?<br>1. apple juice<br>2. iced tea<br>3. milk shake<br>4. soft drink |
| ____ | ____ | 10. | At a social event, how many mixed alcoholic drinks would you consume?<br>1. none<br>2. 1-2 drinks<br>3. 3-4 drinks<br>4. 5 drinks or more |
| ____ | ____ | 11. | Which one of the following would you choose for a meat sandwich?<br>1. bologna<br>2. ham<br>3. salami<br>4. turkey |
| ____ | ____ | 12. | Which one of the following would you select to eat with **baked chicken, rice, and milk**?<br>1. biscuit<br>2. corn bread<br>3. gravy<br>4. green beans |

Directions: Please answer the following questions by writing your answer in the space provided.

1. What helps you decide what to eat?

_____

_____

2. What is your major concern about what you eat?

_____

_____

3. What is your major concern about what your child eats?

_____

_____

This is the end of the Questionnaire

**Questionnaire**

**Spanish Version**

Estimado Padre / Tutor:

UD. y SU NIÑO se han seleccionado para tomar parte en un estudio muy importante.

Su ayuda se necesita para contestar estas preguntas sobre la educación de alimentación. Por favor el padre que compra la mayoría del alimento y la prepara, complete el cuestionario. Las respuestas de los padres en Tejas ayudaran mejorar la educación de alimentación en las guarderías infantiles.

Por favor siga estas sugerencias:

- lea las direcciones de cada sección y cada pregunta cuidadosamente y responda; algunas secciones tienen respuestas y direcciones diferentes.

- después que Ud. ha terminado las preguntas, verifique cada página para estar seguro que Ud. ha contestado todas las preguntas.

- sus respuestas a las preguntas serán confidenciales; los resultados se usarán solamente para propósitos de investigación.

MUCHAS GRACIAS!

Este estudio es respaldado por el Departamento de Servicios Humanos del estado de Tejas.

Universidad de Texas Tech
MS 1162
Lubbock, TX 79409
FAX (806) 742-3042

El Proyecto esta Patrocinado por
El Programa NET de Tejas
P. O. Box 149030
Austin, TX 78714-9030

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## DEMOGRAFICAS

Direcciones: Por favor contester las preguntas siguientes por circular el número en la frente de la respuesta apropiada.

1. Su sexo es:
   1. hembra
   2. varón

2. ¿ Cual es su antecedent etnicos?
   1. Afroamericano
   2. Indio Americano o Nativo de Alaska
   3. Isleño Pacífico o asiático
   4. Hispano / Españolo
   5. Blanco

3. Su edad es:
   1. Menos de 19 años
   2. 20- 29 años
   3. 30- 39 años
   4. Mas de 40 años
   5. Ninguna respuesta

4. Su relación al niño es:
   1. Padre
   2. Madre
   3. Padre adoptivo
   4. Madre adoptivo
   5. Abuelo
   6. Abuela

5. Su estado civil:
   1. Casado o viviendo con un/a companera
   2. Soltero

6. Su antecedente académico es:
   **(CIRCULE grado mas alto que completo)**
   1. Menos de grado 8
   2. El grado 9- 11
   3. Diploma de escuela superiora o GED
   4. Grado asociado o técnico
   5. Grado de colegio
   6. Grado de graduado

7. Su educación formal en la alimentación incluye el estudio de alimentación en:
   1. instituto de enseñanza media
   2. instituto de enseñanza superior
   3. colegio como parte de otro curso
   4. un curso de colegio en la alimentación
   5. Especifique número de horas de crédito de colegio en la alimentación, si aplica _____

8. Su condición de empleo es:
   1. Empleado a tiempo completo o medio tiempo
   2. Desempleado

9. Su participación en la Programa de Asistencia de Comidaes:
   1. USDA Estampilla de Comida
   2. WIC
   3. Suplementales de mercancia
   4. Otra asistencia alimentaria

10. El número de gente que vive en su residencia (emparentado / no emparentado).

    _____

11. El ingreso familiar (antes de impuestos u otras deducciones):
    (de una cantidad de pago po. época)
    Una semana _____
    Dos semanas _____
    Un Mes _____
    Un Año _____

12. ¿ Le gustaría saber más sobre la alimentación?
    1. Sí
    2. No

13. Le gustaría saber más sobre:
    **(CIRCULE SI O NO POR CADA RESPUESTA)**

| | | |
|---|---|---|
| las habilidades de consumidor | 1. Sí | 2. No |
| las directivas dietéticas | 1. Sí | 2. No |
| las preferencias alimentarias | 1. Sí | 2. No |
| la seguridad de la comida / saneamiento | 1. Sí | 2. No |
| las tradiciones de las alimentarias | 1. Sí | 2. No |
| la función de alimentos para mantener la salud | 1. Sí | 2. No |
| las elecciones alimentarias saludables | 1. Sí | 2. No |
| la alimentación y aptitud | 1. Sí | 2. No |
| las nutritivas necesarias | 1. Sí | 2. No |
| las elecciones responsables de si mismo | 1. Sí | 2. No |

    otro, por favor especifica _____

14. ¿ Si Ud. toma classes en la educación de alimentación, enque forma prefiere Ud.?
    **(CIRCULE UNO U'NICO)**
    1. En grupo de discusión
    2. En - servicio
    3. El estudio independiente
    4. La clase
    5. La discusión de panel
    6. Video-cassette / medios
    7. En taller

15. ¿ Se debe enseñar alimentación en el guardería infantil?
    1. Sí
    2. No

16. ¿ Esta Ud satisfecho si su niño(s) participa en la programa de alimentario en la guardería infantil?
    1. Sí
    2. No

17. Si Ud. respondió no, la razón principal es:
    1. Cuesta demasiado
    2. El alimento no es apelando
    3. Demasiado almidón y azúcar en el alimento
    4. Demasiado calorías

    otro, por favor especifica _____

## LA EVALUACION DE CONOCIMIENTO DE ALIMENTACION

Direcciones: Para cada artículo ponga un círculo alrededor del número del mejor (mas correcto) respuesta.

1. Los niños quien comen menos alimento que es necesaria, pueden tener:
    1. el desarrollo disminuido mental y social
    2. el desarrollo disminuido moral y físico
    3. el desarrollo aumentado mental y social
    4. el desarrollo aumentado moral y físico

2. El cuerpo necesita SODIO para:
    1. fluídos de el balance del cuerpo
    2. construye células rojas de sangre
    3. ayuda pelear las enfermedades
    4. fortaleza dientes y huesos

3. La comida que contiene EL COLESTEROL mas altisimo es:
    1. los cacahuetes
    2. los vegetales
    3. los granos enteros
    4. la leche entera

4. Los dos alimentos comunes que faltan en las dietas de Estadounidense son:
    1. el calcio e hierro
    2. el calcio y fosforoso
    3. la vitamina C y sodio
    4. la vitamina C y azúcar

5. Las Directivas Dietéticas para Estadounidenses incluyen todos los siguientes MENOS:
    1. limite de productos lácteos
    2. mantenga peso saludable
    3. el sodio usados en moderación
    4. azúcares usados en moderación

6. Preparar vegetales congelados o frescos para conservar alimentos:
    1. hierva en agua 15-20 minnutos cubiertos
    2. cocinelo en poca agua por 5-10 minutos
    3. cocinelo cubierto con agua hasta que este tierno
    4. hierve en salsa de mantequilla por 15 minutos

7. La MEJOR manera para mejorar una dieta inadecuada es:
   1. Aumente los alimentos que se fortifican altamente
   2. aumente la variedad de alimento tomado
   3. tomar suplemento mineral
   4. tomar suplemento de vitamina

8. Un efecto de largo plazo de comer muchos alimentos altos de AZUCAR puede ser:
   1. diabetes mellitus
   2. la alta presión de sangre
   3. la obesidad
   4. encautaciones petit

9. La gente debería escoger el alimento que comen para:
   1. equilibre la comida tomada diariamete
   2. checar alimentos altos de energía
   3. comer y mirar televisión
   4. comer alimentos que les gustan

10. El desarrollo bajo mental y la actividad física de niños es principalmente debido a la carencia de:
   1. El Calcio
   2. El Hierro
   3. La Vitamina C
   4. La Vitamina E

11. Para una dieta saludable, Yo comería:
   1. una variedad de alimentos
   2. los alimentos frecuentes de merienda
   3. solamente los alimentos frescos
   4. solamenta los alimentos fortificados

12. Para ahorrar dinero gastado en el alimento, uno necesita comprar:
   1. la marca gastrónomo
   2. las marcas nacionales
   3. la mara especialidad
   4. la marca de la tienda

13. Un beneficio importante de FIBRA es que:
   1. no cueste mucho
   2. ayudar prevenir frecuente resfriados
   3. ayudar prevenir cáncer
   4. se encontrar en todos los alimentos

14. Si nosotros NO somos cuidadosos con nuestras comidos, nosotros podemos tener problemas con:
   1. los gastos alimentarios
   2. la enfermedad frecuente
   3. la información de salud
   4. la cadena alimentaria

## LA EVALUACION DE ACTITUD DE ALIMENTACION

Direcciones: Por favor CIRCULAR el número que mejor describe como Ud. siente sobre cada de las declaraciones siguientes.

El valor 5 representa "fuertemente acuerdo"; 4 representa "acuerdo"; 3 representa "insequro"; 2 representa "no estar de acuerdo"; y 1 representa "no estar de acuerdo fuertemente".

| | Fuertemente Acuerdo | Acuerdo | Inseguro | No estar de acuerdo | No estar de acuerdo Fuertemente |
|---|---|---|---|---|---|
| 1. La alimentación buena es importante a la capacidad de un niño para aprender. | 5 | 4 | 3 | 2 | 1 |
| 2. Yo no soy interesado en la alimentación. | 5 | 4 | 3 | 2 | 1 |
| 3. Lo qué Me gusta (y no me gusta) comer hace una diferencia con el alimento qué sirvo. | 5 | 4 | 3 | 2 | 1 |
| 4. La gente necesita comer una variedad de vegetales, frutas y granos cada día. | 5 | 4 | 3 | 2 | 1 |
| 5. Me gusta servir alimentos nuevos a mi familia. | 5 | 4 | 3 | 2 | 1 |
| 6. El desayuno es la comida más importante del día. | 5 | 4 | 3 | 2 | 1 |
| 7. Mantener un peso saludable depende en el alimento comido y ejercicio. | 5 | 4 | 3 | 2 | 1 |

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| | Fuertemente Acuerdo | Acuerdo | Inseguro | No estar de acuerdo | No estar de acuerdo Fuertemente |
|---|---|---|---|---|---|
| 8. Los alimentos que yo como ahora afectarán mi salud en el futuro. | 5 | 4 | 3 | 2 | 1 |
| 9. Como yo como tiene poca influencia en como come mi niño. | 5 | 4 | 3 | 2 | 1 |
| 10. Comer el desayuno hace una diferencia en jugando y trabajo diariamente de un niño. | 5 | 4 | 3 | 2 | 1 |
| 11. Es importante rebajar la grasa en mi dieta. | 5 | 4 | 3 | 2 | 1 |
| 12. Los niños deberían ser capaces de comer alimento en cualquier tiempo. | 5 | 4 | 3 | 2 | 1 |

## LA EVALUACION ELECCION ALIMENTARIA

Direcciones: Ud. contestará cada de las preguntas siguientes DOS VECES. En la columna primera, ponga el número de la respuesta que indica la elección Ud. haría en la presencia de su niño. En la segunda columna, ponga el número de la respuesta que indica la elección Ud. haría si su niño NO estara presente.

| El niño esta presente | El niño NO esta presentar | | |
|---|---|---|---|
| _____ | _____ | 1. | ¿ Que seleccionaría Ud. para una merienda?<br>1. el panecillo de arándano<br>2. un dulce de caramelo<br>3. un pastel con eocarcha<br>4. una naranja |
| _____ | _____ | 2. | ¿ Que escogería Ud. comer?<br>1. banana split<br>2. un helado de chocolate<br>3. el cono de helado<br>4. una barra de jugo |



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El niño esta presente | El niño NO esta presentar

3. ¿ Cuál pan usaría Ud. para hacer un bocadillo?
   1. pan francés
   2. pan de hamburguesa
   3. pan blanco
   4. pan de trigo entero

4. ¿ Si Ud. bebe cerveza, cuántas cervezas bebe por día?
   1. ninguno
   2. 1-2 cervezas
   3. 3-4 cervezas
   4. 5 cervezas o más

5. ¿ Cuál bebida escogería Ud. para beber con el desayuno?
   1. Koolaid
   2. batido de leche
   3. jugo de naranja
   4. soda

6. ¿ Cuál del siguiente seleccionaría gustaria Ud. para una merienda?
   1. papas fritas
   2. pretzels
   3. tortilla chips
   4. palomitas de maíz sin sal

7. ¿ Cuál del siguiente selecciona Ud. para el desayuno?
   1. la galleta enmantecada
   2. el pan tostado con mermelada
   3. dona de mermelada
   4. wafle con jarabe

8. ¿ Cuál de las meriendas siguientes escogería Ud.?
   1. el queso soplada
   2. palomitas de maíz
   3. las papas fritas
   4. pretzels

9. ¿ Cuál bebida seleccionaría Ud. para beber?
   1. el jugo de manzana
   2. té con hielo
   3. batido de leche
   4. soda

10. ¿ En un suceso social, cuántas bebidas alcohólicas consumiría Ud.?
   1. ninguno
   2. 1-2 bebidas
   3. 3-4 bebidas
   4. 5 bebidas o más

El niño esta presente | El niño NO esta presentar

----- ----- 11. ¿ Cuál del siguiente escogeria Ud. para un boc cadillo de carne?
1. bologna
2. jamón
3. salami
4. pavo

----- ----- 12. ¿ Cuál del siguiente selecciona Ud. para comer con pollo al horno, arroz, y leche?
1. galleta
2. pan de maíz
3. salsa de carne
4. ejotes

Direcciones: Por favor contestar las preguntas siguientes por escribir su respuesta en el espacio proveyó.

1. ¿ Qué le ayuda decidir lo qué come?

_____

_____

2. ¿ Qué es su interés importante sobre lo qué come Ud.?

_____

_____

3. ¿ Qué es su interés importante sobre lo qué come su niño?

_____

_____

_____

Este es el fin del Cuestionario

GRACIAS POR PARTICIPAR!

POR FAVOR VUELVA ESTE FORMA COMPLETO AL PROFESOR.

Key for Questionnaire - Parents

| GOAL/Criteria | Question Number (Answer Number) |
|---|---|
| NUTRITION KNOWLEDGE | |
| • healthy food choices | 3(4);7(2) |
| • nutrition and health/fitness | 8(3);13(3) |
| • self-responsibility for food selection | 9(1);14(2) |
| • nutrition and learning | 1(1);10(2) |
| • nutritional needs | 2(1);4(1) |
| • Dietary Guidelines for Americans | 5(1);11(1) |
| • nutritional life/consumer skills | 6(2);12(4) |
| NUTRITION ATTITUDE | |
| • healthy food choices | +6 |
| • nutrition and health/fitness | +7;+8 |
| • self-responsibility for food selection | -2;-3;-9;-12 |
| • nutrition and learning | +1;+10 |
| • Dietary Guidelines for Americans | +4;+11 |
| • food traditions | +5 |
| NUTRITION BEHAVIORS | |
| Food Choices | |
| • sugar | 1(4);5(3) |
| • fat | 2(4);7(2) |
| • fiber | 3(4) |
| • sodium | 6(4);8(4);11(4) |
| • variety | 9(1);12(4) |
| • alcohol | 4(1);10(1) |

## APPENDIX D

## INSTRUMENT DEVELOPED FOR TEACHERS

**Demographics**

**Questionnaire**

- **Nutrition Knowledge**
- **Nutrition Attitudes**
- **Food Choices**
- **Nutrition Education**

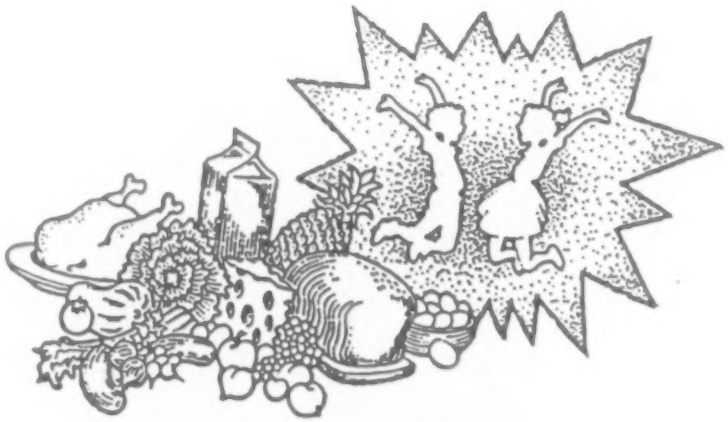
**Key**

- **Goal Indicators**
- **Answers**

Name of Day Care Center Teacher:_____

Address:_____
Street/Box Number City State Zip

Name of Day Care Center:_____



**AN ASSESSMENT OF**
**NUTRITION EDUCATION & TRAINING**
**NEEDS IN TEXAS**

**Teacher**

# DAY CARE TEACHERS

## DEMOGRAPHICS

Name of Day Care with City/Town _____
(All information will be treated confidentially; your center will never be identified by name. Thank you.)

Directions: Please circle correct response.

1. Are you:
   1. female
   2. male

2. What is your ethnic background?
   1. African-American
   2. American Indian or Alaska Native
   3. Asian or Pacific Islander
   4. Hispanic/Spanish
   5. White

3. What is your age group?
   1. Under 19 years
   2. 20-29 years
   3. 30-39 years
   4. Over 40 years
   5. No response

4. What is your highest earned educational background?
   1. less than high school
   2. high school
   3. some college
   4. associate degree
   5. college degree
   6. graduate degree

5. Have you studied food and nutrition? ____Yes ___No If yes, where?
   1. junior high school
   2. high school
   3. a community college
   4. college
   5. workshops

6. How many years have you worked in day care programs (include present year)?
   1. less than 5 years
   2. 6 to 10 years
   3. 11 to 20 years
   4. 21 to 30 years
   5. more than 30 years

## NUTRITION KNOWLEDGE ASSESSMENT

Directions: For each item draw a circle around the number of the best (most correct) answer to the question.

1. The food highest in VITAMIN A is a serving of:
   1. an orange
   2. carrot sticks
   3. raisins
   4. whole wheat bread

2. A possible long-term effect of eating many foods high in SUGAR is:
   1. diabetes mellitus
   2. high blood pressure
   3. obesity
   4. osteoporosis

3. The Dietary Guidelines for Americans are primarily for:
   1. children
   2. healthy people
   3. people on diets
   4. pregnant women

4. Low mental development and low physical activity can be due to lack of:
   1. calcium
   2. iron
   3. vitamin C
   4. vitamin E

5. The BEST refrigerator temperature for temporary storage of food is between:
   1. 28°F and 32°F
   2. 36°F and 40°F
   3. 45°F and 50°F
   4. 55°F and 60°F

6. To control high SODIUM intake in children's menus, you should avoid serving:
   1. canned soup
   2. catfish
   3. celery
   4. whole milk

7. If we are NOT careful about what we eat, we may have problems with:
   1. food chains
   2. food expenses
   3. frequent illness
   4. health information

8. The BEST way to improve a poor diet is to increase:
   1. food supplements
   2. food variety
   3. fortified foods
   4. organic foods

9. For a meal of orange juice, whole wheat toast and low-fat milk which food group is lacking?
   1. bread, cereal, pasta
   2. fruit and vegetable
   3. meat, poultry, bean
   4. milk, yogurt, cheese

10. A good source of FIBER is:
   1. steak
   2. broccoli
   3. milk
   4. yogurt

11. An egg salad sandwich has been sitting on the counter for two hours. You should:
   1. refrigerate at once
   2. serve at once
   3. throw away
   4. place in freezer

12. You have used a wood cutting board to give a food demonstration to the children. The best way to sanitize wood cutting boards is to use a solution of:
   1. baking soda and water
   2. bleach and water
   3. dish washing detergent
   4. hot soapy water

13. The most important purpose for children eating food is to:
   1. feel full
   2. learn table manners
   3. provide nutrients
   4. talk to friends

14. The Dietary Guidelines for Americans include ALL the following EXCEPT:
   1. limit dairy products
   2. maintain healthy weight
   3. use sodium in moderation
   4. use sugar in moderation

15. According to the Basic 4, the minimum daily servings of bread or bread-alternate required for children, ages 3 to 5 is:
   1. 3 servings
   2. 4 servings
   3. 5 servings
   4. 6 servings

16. Which one of the following would be best to select for a snack?
   1. blueberry muffin
   2. candy bar
   3. frosted cupcake
   4. orange slices

## NUTRITION ATTITUDE ASSESSMENT

Directions: Please CIRCLE the number that best describes how you feel about each of the following statements. The value 5 represents "strongly agree"; 4 represents "agree"; 3 represents "unsure"; 2 represents "disagree"; and 1 represents "strongly disagree".

| | | Strongly Agree | Agree | Unsure | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|
| 1. | Good nutrition is important to a child's ability to learn. | 5 | 4 | 3 | 2 | 1 |
| 2. | I am not interested in nutrition. | 5 | 4 | 3 | 2 | 1 |
| 3. | What I like to eat makes a difference with the food I serve. | 5 | 4 | 3 | 2 | 1 |
| 4. | People need to eat a variety of vegetables, fruits and grains each day. | 5 | 4 | 3 | 2 | 1 |
| 5. | I like to try new foods. | 5 | 4 | 3 | 2 | 1 |
| 6. | I would rather take a vitamin pill than change the way that I eat. | 5 | 4 | 3 | 2 | 1 |
| 7. | Maintaining a healthy weight depends on food eaten and exercise. | 5 | 4 | 3 | 2 | 1 |
| 8. | The foods I eat now will affect my future health. | 5 | 4 | 3 | 2 | 1 |
| 9. | It is important to choose a diet low in fat, saturated fat and cholesterol. | 5 | 4 | 3 | 2 | 1 |
| 10. | Too much money is spent on nutrition education. | 5 | 4 | 3 | 2 | 1 |
| 11. | Breakfast is an important meal for good performance in daily tasks. | 5 | 4 | 3 | 2 | 1 |
| 12. | People outgrow their need for drinking milk. | 5 | 4 | 3 | 2 | 1 |

## FOOD CHOICE ASSESSMENT

Directions: You will answer each of the following questions TWICE. In the first column, place the number of the response which indicates the choice you would make in the presence of children. In the second column, place the number of the response which indicates the choice you would make if children was NOT present.

| | Child is present | Child is NOT present | | |
|---|---|---|---|---|
| Q1. | ____ | ____ | 1. | Which one would you select for a snack?<br>1. blueberry muffin<br>2. candy bar<br>3. frosted cupcake<br>4. orange wedges |
| Q2. | ____ | ____ | 2. | Which one would you choose to eat?<br>1. banana split<br>2. chocolate sundae<br>3. ice cream cone<br>4. juice bar |
| Q3. | ____ | ____ | 3. | Which bread would you use to make a sandwich?<br>1. french bread<br>2. hamburger bun<br>3. white bread<br>4. whole wheat bread |
| Q4. | ____ | ____ | 4. | If you do consume beer, how many beers would you drink per day?<br>1. none<br>2. 1-2 beers<br>3. 3-4 beers<br>4. 5 beers or more |
| Q5. | ____ | ____ | 5. | Which beverage would you choose to drink [illegible] breakfast?<br>1. Koolaid<br>2. milk shake<br>3. orange juice<br>4. soft drink |
| Q6. | ____ | ____ | 6. | Which one of the following would you select for a snack?<br>1. potato chips<br>2. pretzels<br>3. tortilla chips<br>4. unsalted popcorn |
| Q7. | ____ | ____ | 7. | Which one of the following would you select for breakfast?<br>1. buttered biscuit<br>2. dry toast with jam<br>3. jelly doughnut<br>4. waffle with syrup |

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Q8. ____ ____ 8. Which one of the following snacks would you choose?

1. cheese puffs
2. popcorn
3. potato chips
4. pretzels

Q9. ---- ---- 9. Which beverage would you select to drink?

1. apple juice
2. iced tea
3. milk shake
4. soft drink

Q10. ----- ----- 10. At a social event, how many mixed alcoholic drinks would you consume?

1. none
2. 1-2 drinks
3. 3-4 drinks
4. 5 drinks or more

Q11. ----- ----- 11. Which one of the following would you choose for a meat sandwich?

1. bologna
2. ham
3. salami
4. turkey

Q12. ---- ---- 12. Which one of the following would you select to eat with **baked chicken, rice, and milk**?

1. biscuit
2. corn bread
3. gravy
4. green beans

## NUTRITION EDUCATION

1. During the last year, you have learned about food and nutrition from:
   1. Family Members Yes___ No___
   2. Friends Yes___ No___
   3. School food service employees Yes___ No___
   4. Day Care nurse Yes___ No___
   5. Teachers Yes___ No___
   6. Other (Please specify) Yes___ No___

2. During the last year, you have learned about food and nutrition from:
   1. Books Yes___ No___
   2. Clubs (4-H-, Scouts) Yes___ No___
   3. Magazines, newspapers Yes___ No___
   4. TV, radio Yes___ No___
   5. NET workshops/training Yes___ No___

3. Would you like to know more about nutrition?
   1. Yes
   2. No

4. Would you like to know more about:
   1. The Basic Four Food Groups Yes___ No___
   2. Consumer skills Yes___ No___
   3. Food Preferences Yes___ No___
   4. Food safety/sanitation Yes___ No___
   5. Food traditions Yes___ No___
   6. Function of nutrients to maintain health Yes___ No___
   7. Healthy food choices Yes___ No___
   8. Nutrition and fitness Yes___ No___
   9. Nutritional needs Yes___ No___
   10. Self-responsible choices Yes___ No___
   11. Dietary Guidelines for Americans Yes___ No___
   12. Other (Please Specify)_____

5. Do you teach nutrition concepts to children in the day care program?
   1. Yes
   2. No

   If you responded NO, please skip to Question 9.

6. I teach nutrition to children:

| Age 3: | Age 5: |
|---|---|
| 1. Every day | 1. Every day |
| 2. Four days a week | 2. Four days a week |
| 3. Three days a week | 3. Three days a week |
| 4. Two days a week | 4. Two days a week |
| 5. One day a week | 5. One day a week |
| 6. None | 6. None |

7. The total number of minutes you teach nutrition per week is:

| Age 3: | Age 5: |
|---|---|
| 1. 1-5 minutes | 1. 1-5 minutes |
| 2. 6-10 minutes | 2. 6-10 minutes |
| 3. 11-15 minutes | 3. 11-15 minutes |
| 4. 16-20 minutes | 4. 16-20 minutes |
| 5. Over 21 minutes | 5. Over 21 minutes |

8. Circle any of the following activities that are included in your program:
   1. tasting parties
   2. observation by children of food preparation
   3. children helping with food preparation
   4. teachers eat meals with the children
   5. other_____

9. The person who functions as the coordinator of nutrition in this day care program is:
   1. food service director
   2. sponsor
   3. administrator
   4. dietitian
   5. teacher of nutrition
   6. Other_____

10. Resources used to help teach nutrition in this center are:
   1. American Cancer Society
   2. American Dairy Council
   3. American Heart Association
   4. American Milk Producers, Inc.
   5. Cooperative Extension Service
   6. In-service training
   7. NET resource materials
   8. NET workshops
   9. Texas Department of Agriculture
   10. Textbooks
   11. Videotapes
   12. AFDC
   13. WIC
   14. Other_____

11. Nutrition education curriculum guides available in your center are:
   1. Changing the Course (American Cancer Society)
   2. Education for Self-responsibility IV
      Nutrition Education (TEA)
   3. Guide developed for your center
   4. The Heart Treasure Chest (American Heart Association)
   5. Project TEACH (Texas Education & Agriculture Cooperating for Health)
   6. Other_____

12. Nutrition concepts that I teach:
    1. Healthy food choices
    2. Basic 4 Food Groups
    3. Food from different cultures
    4. Food traditions
    5. Safety and sanitation
    6. Other_____

13. Nutrition education curriculum guides that I use are:
    1. Changing the Course (American Cancer Society)
    2. Education for Self-responsibility IV
       Nutrition Education (TEA
    3. Guide developed for your center
    4. The Heart Treasure Chest (American Heart Association
    5. Project TEACH (Texas Education & Agriculture Cooperating for Health)
    6. Other_____

14. In my opinion, the THREE most effective methods of teaching nutrition for ALL children are: (CIRCLE THREE (3) RESPONSES ONLY)
    1. activities in the eating area
    2. computers
    3. art work
    4. demonstrations
    5. food preparation by students' involvement
    6. flannel boards
    7. food models
    8. games
    9. media (film, video)
    10. posters
    11. puppets
    12. puzzles
    13. pictures
    14. songs
    15. tasting parties
    16. other_____

15. In my opinion, the THREE most effective methods of teaching nutrition for **multicultural/minority** children are: (CIRCLE THREE (3) RESPONSES ONLY)
    1. activities in the eating area
    2. computers
    3. art work
    4. demonstrations
    5. food preparation by students' involvement
    6. flannel boards
    7. food models
    8. games
    9. media (film, video)
    10. posters
    11. puppets
    12. puzzles
    13. pictures
    14. songs
    15. tasting parties
    16. other_____

16. The three people you are most likely to involve in teaching nutrition are:
**(CIRCLE THREE ONLY)**
1. AFDC representative
2. Cooperative extension home economist
3. Dietitian
4. Government commodity foods representative
5. Public health specialist
6. WIC representative
7. Other_____

17. Do you participate in nutrition education in the children's eating area?
1. Yes
2. No

18. Do you find the children's eating area a cheerful and relaxing environment?
1. Yes
2. No

19. Circle all items with which you participate.
1. I sponsored a tasting party for the children.
2. I eat meals regularly with the children in their eating area.
3. I incorporate children's help in preparing food as a part of the education activity.
4. I enforce the washing of children's hands before eating food.
5. I enforce the washing of children's hands after using the toilet.
5. Other_____

20. What training method in nutrition do you prefer?
1. group discussion
2. lecture
3. video cassettes/media
4. workshop
5. other (Please specify)_____

21. Who do you work with to promote nutrition education?
1. Sponsor
2. Director
3. Teacher
4. Food service worker
5. Parents
6. Other (Please specify)_____

22. I would like to have nutrition education training on:
**(CIRCLE ONLY THREE CHOICES)**
1. Basic Four Food Groups
2. Consumer skills
3. Dietary guidelines
4. Food preferences
5. Food safety/sanitation
6. Food tradition
7. Functions of nutrients to maintain health
8. Healthy Food Choices
9. Nutrition and Fitness
10. Nutritional needs
11. Self-responsible choices
12. Relationship between nutrition and health
13. Relationship between nutrition and achievement
14. Relationship between nutrition and physical fitness
15. Other_____

23. Who serves as the coordinator of nutrition services in the center?
    1. child care center cook
    2. child care center director
    3. child care center caregiver
    4. dietitian
    5. Other_____

24. Rank the following factors from "1" as the most effective in teaching nutrition to "5" as the least effective.
    _____ aid and encouragement from child care director
    _____ aid and encouragement from child care food service manager
    _____ current information on key nutrition issues
    _____ inservice training for child care center teachers
    _____ current nutrition education curriculum for children

25. Which of the following cause problems in teaching nutrition?

| | |
|---|---|
| Insufficient funds to support nutrition education | 1. Yes 2. No |
| Lack of interest among parents, director and caregivers | 1. Yes 2. No |
| Lack of time to plan, coordinate, implement | 1. Yes 2. No |
| Calendars too full with activities | 1. Yes 2. No |
| Shortage of education materials | 1. Yes 2. No |
| Family style meal service is too messy or too slow | 1. Yes 2. No |
| Caregivers don't want to eat with the children | 1. Yes 2. No |
| Lack of interest from food service/cooks | 1. Yes 2. No |

Other, please specify_____

26. Have you attended a NET inservice training?
    1. Yes
    2. No

27. If yes, how many training sessions?
    1. 1-2
    2. 3-4
    3. 5 or more

Key for Questionnaire - Teachers

| GOAL/Criteria | Question Number (Answer Number) |
|---|---|
| NUTRITION KNOWLEDGE | |
| • healthy food choices | 8(2); 9(3) |
| • nutrition and health/fitness | 2(3); 6(1); 10(2) |
| • self-responsibility for food selection | 7(3); 13(3); 16(4) |
| • nutrition and learning | 4(2) |
| • nutritional needs | 1(2) |
| • Dietary Guidelines for Americans | 3(2); 14(1); 15(2) |
| • food safety/sanitation | 5(2); 11(3); 12(2) |
| NUTRITION ATTITUDE | |
| • healthy food choices | +5,-12 |
| • nutrition and health/fitness | +7,+8 |
| • self-responsibility for food selection | -2,-3,-6 |
| • nutrition and learning | +1,-10,+11 |
| • Dietary Guidelines for Americans | +4,+9 |
| NUTRITION BEHAVIORS * | |
| Food Choices | |
| • sugar | 1(4);5(3) |
| • fat | 2(4);7(2) |
| • fiber | 3(4) |
| • sodium | 6(4);8(4);11(4) |
| • variety | 9(1);12(4) |
| • alcohol | 4(1);10(1) |

*Mail out only

## APPENDIX E

## INSTRUMENT DEVELOPED FOR PROVIDERS

**Demographics**

**Questionnaire**

- **Nutrition Knowledge**
- **Nutrition Attitudes**
- **Food Choices**
- **Meal Planning and Service**
- **Nutrition Education**

**Key**

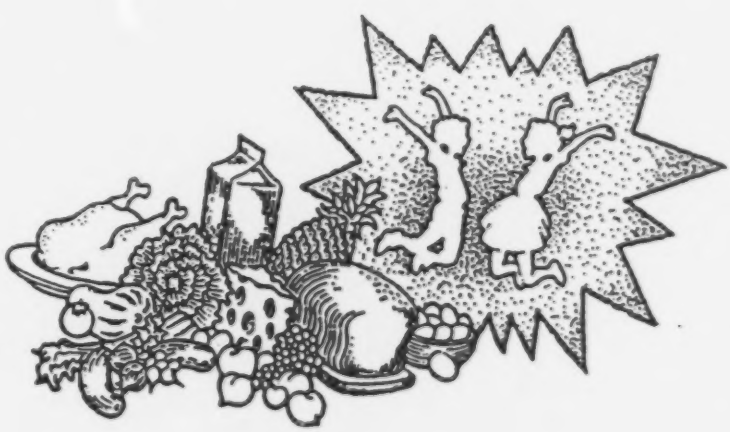
- **Goal Indicators**
- **Answers**

Name of Day Home Provider:_____

Addres _____
Street/Box Number City State Zip

Name of Child Care:_____

Number of Children Enrolled:___3-year-old___4-year-old___5-year-old



**AN ASSESSMENT OF**
**NUTRITION EDUCATION & TRAINING**
**NEEDS IN TEXAS**

**Provider**

## DAY CARE PROVIDER

| Name of Day Care Home Provider | Telephone No. ( ) |
|---|---|
| Address of Day Care Home (Street, City, State, ZIP) | |
| Day Care Provider(s) Interviewed | |
| Name of Contractor | |
| Number of Children Enrolled: _____ 3-Year-Olds _____ 5-Year-Olds | |

This day care home is licensed, registered, or approved for child care by:

| Licensing/Registration No. | Describe |
|---|---|
| ☐ DHS | ☐ Other |

On what days will meals be claimed for reimbursement?

☐ Monday - Friday ☐ Saturday ☐ Sunday

What time will meal service begin?

| Breakfast | A.M. Supplement | Lunch | P.M. Supplement |
|---|---|---|---|
| | | | |

How will meals be provided?

| Prepared at | Describe |
|---|---|
| ☐ Day Care Home | ☐ Other |

## DEMOGRAPHICS

Directions: Please circle correct response.

1. Are you:
   1. female
   2. male

2. What is your ethnic background?
   1. African-American
   2. American Indian or Alaska Native
   3. Asian or Pacific Islander
   4. Hispanic/Spanish
   5. White

3. What is your age group?
   1. Under 19 years
   2. 20-29 years
   3. 30-39 years
   4. Over 40 years
   5. No response

4. What is your highest earned educational background?
   1. less than high school
   2. high school
   3. some college
   4. associate degree
   5. college degree
   6. graduate degree

5. Have you studied food and nutrition? ____Yes ___No If yes, where?
   1. junior high school
   2. high school
   3. a community college
   4. college
   5. workshops

6. How many years have you worked in day care (include present year)?
   1. less than 5 years
   2. 6 to 10 years
   3. 11 to 20 years
   4. 21 to 30 years
   5. more than 30 years

7. What percentage of the menu items served at your day care is prepared from raw ingredients?
   1. 0
   2. 1 - 25%
   3. 26 - 50%
   4. 51 - 75%
   5. 76 - 100%

8. Do you have a separate charge for the child's breakfast? Yes___ No___. If yes, how much?
   $_____

9. Do you have a separate charge for the child's noon meal? Yes___ No___. If yes, how much?
   $_____

10. What is the total time required to serve the noon meal to all children?
    1. less than 30 minutes
    2. 31 - 45 minutes
    3. 3/4 - one hour
    4. Over one hour

11. What is the total time required to serve supplemental morning or afternoon snacks to children?
    1. less than ten minutes
    2. 11 - 19 minutes
    3. 20 - 25 minutes
    4. over 25 minutes

12. On the average how many reimbursable meals do you serve each day?
    _____

13. Of the total meals served to children, what is the percentage which are free, reduced price, and full price?
    free _____%
    reduced price _____%
    full price _____%

14. Are your meals served:
    1. As a unit/cafeteria style _____Yes _____No
    2. Family style _____Yes _____No
    3. Blue Plate special (served in kitchen) _____Yes _____No

15. Is a cycle menu used?
    1. Yes_____
    2. No _____

16. What is the length of the cycle? (Enter 00 if a cycle menu is not used)
    _____

17. How many special dietary meals are provided per day?
    _____

18. Do you have problems in purchasing nutritious and appealing food economically?
    1. Yes _____
    2. No _____

19. Do you have problems in preparing nutritious and appealing food economically?
    1. Yes _____
    2. No _____

20. Are you interested in further training on food and nutrition?
    1. Yes _____
    2. No _____

21. If your response is "yes", please indicate only three training topics. Mark your highest preference with "1", second choice "2", third choice "3".
    ____ 1. Menu planning
    ____ 2. Attitudes toward foods
    ____ 3. Safety and sanitation
    ____ 4. Nutrition information
    ____ 5. Buying nutritious food economically
    ____ 6. Preparing nutritious and appealing food
    ____ 7. Other (Please specify)_____

22. What training format would you prefer? (Circle one only)
    1. Group discussion
    2. Media/Video cassettes
    3. Workshop
    4. Other, please specify _____

## DAY CARE PROVIDER
## NUTRITION KNOWLEDGE ASSESSMENT

Directions: For each item draw a circle around the number of the **best** (most correct) answer to the question.

1. The food highest in VITAMIN A is a serving of:
   1. an orange
   2. carrot sticks
   3. raisins
   4. whole wheat bread

2. A possible long-term effect of eating many foods high in SUGAR is:
   1. diabetes mellitus
   2. high blood pressure
   3. obesity
   4. osteoporosis

3. The Dietary Guidelines for Americans are primarily for:
   1. children
   2. healthy people
   3. people on diets
   4. pregnant women

4. Low mental development and low physical activity can be due to lack of:
   1. calcium
   2. iron
   3. vitamin C
   4. vitamin E

5. The BEST refrigerator temperature for temporary storage of food is between:
   1. 28°F and 32°F
   2. 36°F and 40°F
   3. 45°F and 50°F
   4. 55°F and 60°F

6. To control high SODIUM intake in children's menus, you should avoid serving:
   1. canned soup
   2. catfish
   3. celery
   4. whole milk

7. If we are NOT careful about what we eat, we may have problems with:
   1. food chains
   2. food expenses
   3. frequent illness
   4. health information

8. The BEST way to improve a poor diet is to increase:
   1. food supplements
   2. food variety
   3. fortified foods
   4. organic foods

9. For a meal of orange juice, whole wheat toast and low-fat milk which food group is lacking?
   1. bread, cereal, pasta
   2. fruit and vegetable
   3. meat, poultry, bean
   4. milk, yogurt, cheese

10. A good source of FIBER is:
   1. steak
   2. broccoli
   3. milk
   4. yogurt

11. An egg salad sandwich has been sitting on the counter for two hours. You should:
   1. refrigerate at once
   2. serve at once
   3. throw away
   4. place in freezer

12. The best way to sanitize wood cutting boards is to use a solution of:
   1. baking soda and water
   2. bleach and water
   3. dish washing detergent
   4. hot soapy water

## NUTRITION ATTITUDE ASSESSMENT

Directions: Please CIRCLE the number that best describes how you feel about each of the following statements. The value 5 represents "strongly agree"; 4 represents "agree"; 3 represents "unsure"; 2 represents "disagree"; and 1 represents "strongly disagree".

| | | Strongly Agree | Agree | Unsure | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|
| 1. | Good nutrition is important to a child's ability to learn. | 5 | 4 | 3 | 2 | 1 |
| 2. | I am not interested in nutrition. | 5 | 4 | 3 | 2 | 1 |
| 3. | What I like to eat makes a difference with the food I serve. | 5 | 4 | 3 | 2 | 1 |
| 4. | People need to eat a variety of vegetables, fruits and grains each day. | 5 | 4 | 3 | 2 | 1 |
| 5. | I like to try new foods. | 5 | 4 | 3 | 2 | 1 |
| 6. | I would rather take a vitamin pill than change the way that I eat. | 5 | 4 | 3 | 2 | 1 |
| 7. | Maintaining a healthy weight depends on food eaten and exercise. | 5 | 4 | 3 | 2 | 1 |
| 8. | The foods I eat now will affect my future health. | 5 | 4 | 3 | 2 | 1 |
| 9. | It is important to choose a diet low in fat, saturated fat and cholesterol. | 5 | 4 | 3 | 2 | 1 |
| 10. | Too much money is spent on nutrition education. | 5 | 4 | 3 | 2 | 1 |
| 11. | Breakfast is an important meal for good performance in daily tasks. | 5 | 4 | 3 | 2 | 1 |
| 12. | People outgrow their need for drinking milk. | 5 | 4 | 3 | 2 | 1 |

## FOOD CHOICE ASSESSMENT

Directions: You will answer each of the following questions TWICE. In the first column, place the number of the response which indicates the choice you would make in the presence of children. In the second column, place the number of the response which indicates the choice you would make if children was NOT present.

| | **Child is present** | **Child is NOT present** | | |
|---|---|---|---|---|
| Q1. | ____ | ____ | 1. | Which one would you select for a snack?<br>1. blueberry muffin<br>2. candy bar<br>3. frosted cupcake<br>4. orange wedges |
| Q2. | ____ | ____ | 2. | Which one would you choose to eat?<br>1. banana split<br>2. chocolate sundae<br>3. ice cream cone<br>4. juice bar |
| Q3. | ____ | ____ | 3. | Which bread would you use to make a sandwich?<br>1. french bread<br>2. hamburger bun<br>3. white bread<br>4. whole wheat bread |
| Q4. | ____ | ____ | 4. | If you do consume beer, how many beers would you drink per day?<br>1. none<br>2. 1-2 beers<br>3. 3-4 beers<br>4. 5 beers or more |
| Q5. | ____ | ____ | 5. | Which beverage would you choose to drink with breakfast?<br>1. Koolaid<br>2. milk shake<br>3. orange juice<br>4. soft drink |
| Q6. | ____ | ____ | 6. | Which one of the following would you select for a snack?<br>1. potato chips<br>2. pretzels<br>3. tortilla chips<br>4. unsalted popcorn |
| Q7. | ____ | ____ | 7. | Which one of the following would you select for breakfast?<br>1. buttered biscuit<br>2. dry toast with jam<br>3. jelly doughnut<br>4. waffle with syrup |

Q8. ____ ____ 8. Which one of the following snacks would you choose?
1. cheese puffs
2. popcorn
3. potato chips
4. pretzels

Q9. ----- ----- 9. Which beverage would you select to drink?
1. apple juice
2. iced tea
3. milk shake
4. soft drink

Q10. ----- ----- 10. At a social event, how many mixed alcoholic drinks would you consume?
1. none
2. 1-2 drinks
3. 3-4 drinks
4. 5 drinks or more

Q11. ----- ----- 11. Which one of the following would you choose for a meat sandwich?
1. bologna
2. ham
3. salami
4. turkey

Q12. ----- ----- 12. Which one of the following would you select to eat with **baked chicken, rice, and milk**?
1. biscuit
2. corn bread
3. gravy
4. green beans

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Key for Questionnaire - Providers

| GOAL/Criteria | Question Number (Answer Number) |
|---|---|
| NUTRITION KNOWLEDGE | |
| • healthy food choices | 8(2); 9(3) |
| • nutrition and health/fitness | 2(3); 6(1); 10(2) |
| • self-responsibility for food selection | 7(3); |
| • nutrition and learning | 4(2) |
| • nutritional needs | 1(2) |
| • Dietary Guidelines for Americans | 3(2); |
| • food safety/sanitation | 5(2); 11(3); 12(2) |
| NUTRITION ATTITUDE | |
| • healthy food choices | +5,-12 |
| • nutrition and health/fitness | +7,+8 |
| • self-responsibility for food selection | -2,-3,-6 |
| • nutrition and learning | +1,-10,+11 |
| • Dietary Guidelines for Americans | +4,+9 |
| NUTRITION BEHAVIORS | |
| Food Choices | |
| • sugar | 1(4);5(3) |
| • fat | 2(4);7(2) |
| • fiber | 3(4) |
| • sodium | 6(4);8(4);11(4) |
| • variety | 9(1);12(4) |
| • alcohol | 4(1);10(1) |

## APPENDIX F

## INSTRUMENTS DEVELOPED FOR FOOD SERVICE

- **Demographics, Questionnaires, Key**
- **Menu and Dietary Analysis for Compliance**
- **Food Service Practice**

## APPENDIX F

## SECTION 1

**Demographics**

**Questionnaires**

- **Nutrition and Management Education**
- **Nutrition Attitudes**
- **Food Service Operation**
- **Nutrition Education Practices**

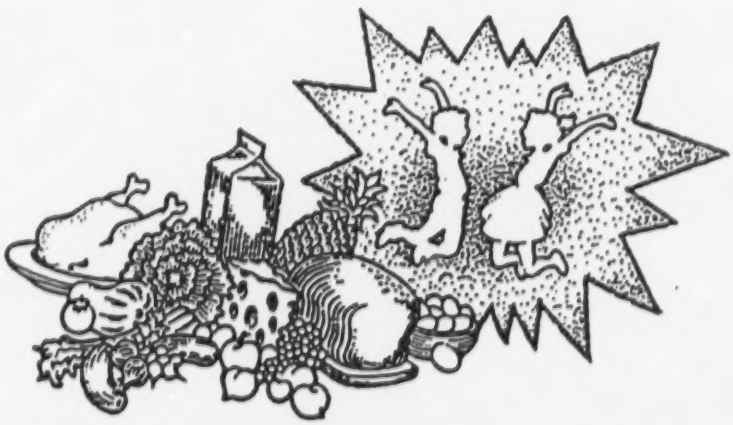
**Key**

- **Goal Indicators**
- **Answers**

Name of Day Care Center Director:_____

Address:_____
Street/Box Number City State Zip

Name of Day Care Center:_____



**AN ASSESSMENT OF**
**NUTRITION EDUCATION & TRAINING**
**NEEDS IN TEXAS**

**Food Service**

# DAY CARE FOOD SERVICE ADMINISTRATORS/MANAGERS

## DEMOGRAPHICS

Name of Day Care with City/Town Name _____
(All information will be treated confidentially; your center will never be identified by name. Thank you.)

Directions: Please circle correct response.

1. Are you:
   1. female
   2. male

2. What is your ethnic background?
   1. African-American
   2. American Indian or Alaska Native
   3. Asian or Pacific Islander
   4. Hispanic/Spanish
   5. White

3. What is your age group?
   1. Under 19 years
   2. 20-29 years
   3. 30-39 years
   4. Over 40 years

4. What is your highest earned educational background?
   1. less than high school
   2. high school
   3. some college
   4. associate degree
   5. college degree
   6. graduate degree

5. Have you studied food and nutrition? ____Yes ___No If yes, where?
   1. junior high school
   2. high school
   3. a community college
   4. college
   5. workshops

6. How many years have you worked in day care (include present year)?
   1. less than 5 years
   2. 6 to 10 years
   3. 11 to 20 years
   4. 21 to 30 years
   5. more than 30 years

7. What percentage of the menu items served at your day care is prepared from raw ingredients?
   1. 0
   2. 1 - 25%
   3. 26 - 50%
   4. 51 - 75%
   5. 76 - 100%

8. Do you have a separate charge for the child's breakfast? Yes___ No___.
   If yes, how much? $_____

9. Do you have a separate charge for the child's noon meal? Yes___ No___.
   If yes, how much? $_____

10. What is the total time required to serve the noon meal to all children?
    1. less than 30 minutes
    2. 31 - 45 minutes
    3. 3/4 - one hour
    4. Over one hour

11. What is the total time required to serve supplemental morning or afternoon snacks to children?
    1. less than ten minutes
    2. 11 - 19 minutes
    3. 20 - 25 minutes
    4. over 25 minutes

12. On the average how many reimbursable meals do you serve each day?
    _____

13. Of the total meals served to children, what is the percentage which are free, reduced price, and full price?
    free _____%
    reduced price _____%
    full price _____%

14. Are your meals served:
    1. As a unit/cafeteria style _____Yes _____No
    2. Family style _____Yes _____No
    3. Blue Plate special (served in kitchen) _____Yes _____No

15. Is a cycle menu used?
    1. Yes_____
    2. No ____

16. What is the length of the cycle? (Enter 00 if a cycle menu is not used)
    _____

17. Who plans the menus?
    1. Director
    2. Dietitian
    3. Head cook
    4. Food service manager
    5. Other (Please specify)_____



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18. If the menus are planned on site, what references are used?
    1. Books
    2. Old menus
    3. Records
    4. Government regulations
    5. Other (Please specify)_____

19. How many special dietary meals are provided per day?
    _____

20. Are you interested in further training on food and nutrition?
    1. Yes _____
    2. No _____

21. If your response is "yes", please indicate only three training topics. Mark your highest preference with "1", second choice "2", third choice "3".
    ____ 1. Menu planning
    ____ 2. Attitudes toward foods
    ____ 3. Safety and sanitation
    ____ 4. Nutrition information
    ____ 5. Buying nutritious food economically
    ____ 6. Preparing nutritious and appealing food
    ____ 7. Planning menus to meet reimbursement requirements
    ____ 8. Use of computers to plan menus
    ____ 9. Basic Four Food Groups
    ____ 10. Dietary Guidelines for Americans
    ____ 11. Other (Please specify)_____

22. What training format would you prefer? (Circle one only)
    1. Group discussion
    2. Media/Video cassettes
    3. Workshop
    4. Other, please specify _____

## NUTRITION KNOWLEDGE ASSESSMENT

Directions: For each item draw a circle around the number of the **best** (most correct) answer to the question.

1. The food highest in VITAMIN A is a serving of:
    1. an orange
    2. carrot sticks
    3. raisins
    4. whole wheat bread

2. A possible long-term effect of eating many foods high in SUGAR is:
    1. diabetes mellitus
    2. high blood pressure
    3. obesity
    4. osteoporosis

3. The Dietary Guidelines for Americans are primarily for:
   1. children
   2. healthy people
   3. people on diets
   4. pregnant women

4. Low mental development and low physical activity can be due to lack of:
   1. calcium
   2. iron
   3. vitamin C
   4. vitamin E

5. The BEST refrigerator temperature for temporary storage of food is between:
   1. 28°F and 32°F
   2. 36°F and 40°F
   3. 45°F and 50°F
   4. 55°F and 60°F

6. To control high SODIUM intake in children's menus, you should avoid serving:
   1. canned soup
   2. catfish
   3. celery
   4. whole milk

7. If we are NOT careful about what we eat, we may have problems with:
   1. food chains
   2. food expenses
   3. frequent illness
   4. health information

8. The BEST way to improve a poor diet is to increase:
   1. food supplements
   2. food variety
   3. fortified foods
   4. organic foods

9. For a meal of orange juice, whole wheat toast and low-fat milk which food group is lacking?
   1. bread, cereal, pasta
   2. fruit and vegetable
   3. meat, poultry, bean
   4. milk, yogurt, cheese

10. A good source of FIBER is:
    1. steak
    2. broccoli
    3. milk
    4. yogurt

11. An egg salad sandwich has been sitting on the counter for two hours. You should:
    1. refrigerate at once
    2. serve at once
    3. throw away
    4. place in freezer

12. The best way to sanitize wood cutting boards is to use a solution of:
    1. baking soda and water
    2. bleach and water
    3. dish washing detergent
    4. hot soapy water

13. The most important purpose for children eating food is to:
    1. feel full
    2. learn table manners
    3. provide nutrients
    4. talk to friends

14. To save nutrients and color, the maximum recommended holding time for cooked vegetables is:
    1. 10 minutes
    2. 15 minutes
    3. 20 minutes
    4. 25 minutes

15. According to the Basic 4, the minimum daily servings of bread or bread-alternate required for children, ages 3 to 5 is:
    1. 3 servings
    2. 4 servings
    3. 5 servings
    4. 6 servings

16. The cook needs to triple a recipe that requires 1 1/2 cups of milk for a single recipe. The cook will need to have the following amount of milk for tripling the recipe:
    1. 3 cups
    2. 4 1/2 cups
    3. 6 cups
    4. 7 1/2 cups

17. One of the best ways to control quality of menu items is to use:
    1. less variety of foods
    2. more processed foods
    3. standardized recipes
    4. brand name food items

18. In serving bananas, (fruit and vegetable group) one serving of fruit for children, ages 3-5, is:
    1. 1/4 of a banana
    2. 1/2 of a banana
    3. 3/4 of a banana
    4. one whole banana

19. A recipe requires two tablespoons of cumin powder. If you only have a teaspoon measure, the cook should use:
    1. 1 teaspoon of cumin
    2. 2 teaspoons of cumin
    3. 4 teaspoons of cumin
    4. 6 teaspoons of cumin

20. In an emergency, you must find an immediate substitution for the green beans on the noon lunch menu. The best substitute from the freezer/storage area is:
    1. corn
    2. apple
    3. peas
    4. pears

## NUTRITION ATTITUDE ASSESSMENT

Directions: Please CIRCLE the number that best describes how you feel about each of the following statements. The value 5 represents "strongly agree"; 4 represents "agree"; 3 represents "unsure"; 2 represents "disagree"; and 1 represents "strongly disagree".

| | | Strongly Agree | Agree | Unsure | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|
| 1. | Good nutrition is important to a child's ability to learn. | 5 | 4 | 3 | 2 | 1 |
| 2. | I am not interested in nutrition. | 5 | 4 | 3 | 2 | 1 |
| 3. | What I like to eat makes a difference with the food I serve. | 5 | 4 | 3 | 2 | 1 |
| 4. | People need to eat a variety of vegetables, fruits and grains each day. | 5 | 4 | 3 | 2 | 1 |
| 5. | I like to try new foods. | 5 | 4 | 3 | 2 | 1 |
| 6. | I would rather take a vitamin pill than change the way that I eat. | 5 | 4 | 3 | 2 | 1 |
| 7. | Maintaining a healthy weight depends on food eaten and exercise. | 5 | 4 | 3 | 2 | 1 |
| 8. | The foods I eat now will affect my future health. | 5 | 4 | 3 | 2 | 1 |
| 9. | It is important to choose a diet low in fat, saturated fat and cholesterol. | 5 | 4 | 3 | 2 | 1 |
| 10. | Too much money is spent on nutrition education. | 5 | 4 | 3 | 2 | 1 |
| 11. | Breakfast is an important meal for good performance in daily tasks. | 5 | 4 | 3 | 2 | 1 |
| 12. | People outgrow their need for drinking milk. | 5 | 4 | 3 | 2 | 1 |

## NUTRITION EDUCATION

1. Circle any of the following available in the children's eating area:
   1. child size tables
   2. child size chairs
   3. child size forks and spoons
   4. child size glasses/cups

2. Circle any of the following activities that are included in your program:
   1. tasting parties
   2. observation by children of food preparation
   3. children helping with food preparation
   4. teachers eat meals with the children
   5. Other_____

3. Do you have problems in purchasing nutritious and appealing food economically?
   1. Yes
   2. No

4. What resources can help you in purchasing nutritious and appealing food economically?
   1. Information on planning menus.
   2. Information on multi-cultural foods.
   3. Computer programs to analyze menu nutrients.
   4. Guidelines for storage, inventory, and supplies.
   5. Introduction of new foods into menus.
   6. Other_____

5. Do you have problems in preparing nutritious and appealing food economically?
   1. Yes
   2. No

6. What resources can help you in preparing nutritious and appealing food economically?
   1. Information on planning menus.
   2. Information on multi-cultural foods.
   3. Computer programs to analyze menu nutrients.
   4. Guidelines for storage, inventory, and supplies.
   5. Introduction of new foods into menus.
   6. Other_____

7. Who do you work with to promote nutrition education?
   1. Sponsor
   2. Director
   3. Teacher
   4. Food service worker
   5. Parents
   6. Other (Please specify)_____

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8. Do you participate in nutrition education in the children's eating area?
   1. Yes
   2. No

9. If you participate in nutrition education in the children's eating area, how?
   1. I am invited to teach nutrition in the eating area.
   2. I invite the child care cook to teach nutrition in the eating area.
   3. The teacher and I work together on teaching nutrition.
   4. I sponsor tasting parties in the eating area.
   5. I sponsor tasting parties in the learning area.

10. Do you find the children's eating area a cheerful and relaxing environment?
    1. Yes
    2. No

11. The coordinator of nutrition services in the child care center is the
    1. child care center cook
    2. child care center director
    3. child care center caregiver
    4. dietitian
    5. Other_____

12. Rank the following factors from "1" as the most effective in teaching nutrition to "5" as the least effective.
    _____ aid and encouragement from child care director
    _____ aid and encouragement from child care center teachers
    _____ current information on key nutrition issues
    _____ inservice training for child care center food service managers
    _____ current nutrition education curriculum for children

13. Which of the following cause problems in teaching nutrition?

| | |
|---|---|
| Insufficient funds to support nutrition education | 1. Yes 2. No |
| Lack of interest among parents, director and caregivers | 1. Yes 2. No |
| Lack of time to plan, coordinate, implement | 1. Yes 2. No |
| Calendars too full with activities | 1. Yes 2. No |
| Shortage of education materials | 1. Yes 2. No |
| Family style meal service is too messy or too slow | 1. Yes 2. No |
| Caregivers don't want to eat with the children | 1. Yes 2. No |

Other, please specify_____

14. Have you attended a NET inservice training?
    1. Yes
    2. No

15. If yes, how many training sessions?
    1. 1-2
    2. 3-4
    3. 5 or more

Key for Questionnaire - Food Service

| GOAL/Criteria | Question Number (Answer Number) |
|---|---|
| NUTRITION KNOWLEDGE | |
| • healthy food choices | 8(2);9(3) |
| • nutrition and health/fitness | 2(3);(10(2) |
| • self-responsibility for food selection | 7(3) |
| • nutrition and learning | 4(2) |
| • nutritional needs | 1(2);13(3) |
| • Dietary Guidelines for Americans | 3(2) |
| • nutritional life/consumer skills | 6(1) |
| • food safety/sanitation | 5(2);11(3);12(2) |
| NUTRITION ATTITUDE | |
| • healthy food choices | -3;+5;-12 |
| • nutrition and health/fitness | -2;-6;+7;+8 |
| • nutrition and learning | +1;-10;+11 |
| • Dietary Guidelines for Americans | +4;+9 |
| MANAGEMENT KNOWLEDGE | |
| • nutrition and menu planning | 15(2);18(1);20(3) |
| • food production | 16(2);19(4) |
| • service | 14(3) |
| • sanitation and safety | 5(2);11(3);12(2) |
| • food acceptability (included in Nutrition Knowledge) | 17(3) |

## APPENDIX F

## SECTION 2

**Menu and Dietary Analysis for Compliance**

- **Menu Spreadsheet Form**
- **USDA Menu Patterns**
- **Dietary Guidelines for Americans**
- **Menu Items (Planned versus Served)**

**Food Service Practice**

- **Compliance of Food Service Practices**

School Name:

Meal: B / L

Date:

# MENU SPREADSHEET

| | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY |
|---|---|---|---|---|---|
| MEAT/MEAT ALTERNATE | | | | | |
| MEAT/MEAT ALTERNATE | | | | | |
| VEGETABLE/ FRUIT | | | | | |
| VEGETABLE/ FRUIT | | | | | |
| VEGETABLE/ FRUIT | | | | | |
| BREAD/BREAD ALTERNATE | | | | | |
| BREAD/BREAD ALTERNATE | | | | | |
| MILK | | | | | |
| OTHER | | | | | |

USDA Menu Analysis

Computing Directions for
Compliance with USDA Menu Pattern

Procedure

1. Evaluate the adequacy of the menu pattern for each day by comparing the menu with the pattern specified by USDA.

2. Circle the week day(s) for which the menu is not in compliance with the pattern.

3. To compute the compliance score for a meal component, subtract 1 point for each day (e.g., 5 days, 1) that the menu does not meet the pattern for that component.

4. Calculate the total points by subtracting the noncompliance points from 20 for breakfast, and from 21 for lunch.

5. Determine the compliance percentage score by dividing the total points by 20 for breakfast, and 21 for lunch and multiplying times 100.

Day Care Center_____ Date_____

Number_____ Type_____ Meal:
BREAKFAST / LUNCH

Provider's Name_____

DIRECTIONS:

1. Record the food components from the day care menu on form.
2. Observe the food items/components and portions actually served.
3. If the food item/component is the same, check in the appropriate space on the form and assess if the portion size is adequate.
4. If a substitution is made, circle Y, list the food component, and circle whether the portion was more (+), equal (=), or less (-) than the standard portion.

**Site Visit Observation Checklist: Menu Items Planned vs. Served**

| PLANNED/SERVED | | | SUBSTITUTION/SERVED | | |
|---|---|---|---|---|---|
| FOOD ITEM | YES/NO | PORTION | FOOD ITEM | YES/NO | PORTION |
| | Y N | + = - | | Y N | + = - |
| | Y N | + = - | | Y N | + = - |
| | Y N | + = - | | Y N | + = - |
| | Y N | + = - | | Y N | + = - |
| | Y N | + = - | | Y N | + = - |
| | Y N | + = - | | Y N | + = - |
| | Y N | + = - | | Y N | + = - |
| | Y N | + = - | | Y N | + = - |

**Site Practices**
**Compliance of Food Service Practices**

Directions for computing:

1. Compare the practices observed with the practices recommended by Project 2001.

2. If the practice met the requirements of 2001, circle "Y". If the practice did not meet the requirements, circle "N". If the practice was not observed, circle "N/A".

3. Determine the maximum points which were possible by counting the number of items which received either "Y" or "N".

4. Tally the number of items which received "Y" as the total score.

5. Determine the compliance percentage score by dividing the total score by the maximum score and multiplying times 100.

## COMPLIANCE OF FOOD SERVICE PRACTICES

Scoring Procedures

1. Compare the practices observed with the practices recommended by Project 2001.

2. If the practice met the requirements of 2001, circle "Y". If the practice did not meet the requirements, circle "N". If the practice was not observed, circle "N/A".

| TYPE OF INGREDIENT | PRACTICE | COMMENTS |
|---|---|---|
| 1. Reduced fat meat/meat alternates are purchased. (PR2) | Y N N/A | |
| 2. Basic 4 is used in planning menus. | Y N N/A | |
| 3. Canned fish is packed in water instead of oil. (PR4) | Y N N/A | |
| 4. Canned fruits are packed in light syrup or fruit juice. (PR5) | Y N N/A | |
| 5. Fat is drained from meat during the cooking process. (PR7) | Y N N/A | |
| 6. Breads, buns, and crackers contain at least 30% whole-grain flour (PR10) | Y N N/A | |
| 7. Reduced fat salad dressings and mayonnaise are purchased. (PR1) | Y N N/A | |
| 8. Salt is added to canned vegetables. (PR11) | Y N N/A | |
| 9. Prepared items are processed with vegetable oils. (PR12) | Y N N/A | |
| 10. A majority of menu items are prepared on-site. (MP8) | Y N N/A | |
| 11. Ground poultry (11% fat or less) is mixed in a 50/50 ratio with ground meat. (PR3) | Y N N/A | |
| 12. Vegetables are held longer than 20 minutes until served. (PS4) | Y N N/A | |
| 13. Edible vegetable and fruit peels/ skins are removed. (PS13) | Y N N/A | |
| 14. Recipes have been modified to reduce amount of total fat. (PS9) | Y N N/A | |
| 15. Non-stick spray is used to saute and prevent sticking. (PS10) | Y N N/A | |
| 16. Recipes have been modified to reduce amount of salt and sodium. (PS11) | Y N N/A | |

NAME:_____

DAY CARE FACILITY_____

## OBSERVED FOOD INTAKE
## BREAKFAST PATTERN
## AGE 3 and 5 CHILDREN

| BREAKFAST<br>Food Components | | Standard<br>Ages 3 and 5 | Food Intake |
|---|---|---|---|
| Milk | Milk, fluid | 3/4 CUP | 0 1/4 1/2 3/4 All |
| Vegetables and Fruits | Vegetable(s) and/or fruit(s) or | 1/2 cup | 0 1/4 1/2 3/4 All |
| | Full strength vegetable or fruit juice (to meet 1/2 requirement) or | 1/2 cup | 0 1/4 1/2 3/4 All |
| | An equivalent quantity of any combination of vegetable(s), fruit(s), and juice | 1/2 cup | 0 1/4 1/2 3/4 All |
| Bread and Bread Alternates | Bread[2] or | 1/2 slice | 0 1/4 1/2 3/4 All |
| | Cornbread, biscuits, rolls, muffins, etc.[2] or | 1/2 serving | 0 1/4 1/2 3/4 All |
| | Cold dry cereal[3] or | 1/3 cup or 1/2 oz. | 0 1/4 1/2 3/4 All |
| | Cooked pasta or noodle products[2] or | 1/4 cup | 0 1/4 1/2 3/4 All |
| | Cooked cereal grains[3] or | 1/4 cup | 0 1/4 1/2 3/4 All |
| | An equivalent quantity of any combination of bread/bread alternate | 1/4 cup | 0 1/4 1/2 3/4 All |

[1]All serving sizes are based on a standard measuring cup
[2]Must be whole grain or enriched
[3]Must be whole grain, enriched, or fortified

NAME: _____

DAY CARE FACILITY: _____

## OBSERVED FOOD INTAKE
## LUNCH PATTERN
## AGE 3 AND 5 CHILDREN

| LUNCH<br>Food Components | | Standard<br>Ages 3 and 5 | Child's<br>Food Intake |
|---|---|---|---|
| Milk | Milk, fluid | 1/2 cup | 0 1/4 1/2 3/4 All |
| Vegetables and Fruits | Vegetable(s) and/or fruit(s)[1] | 1/2 cup total | 0 1/4 1/2 3/4 All |
| Bread and Bread Alternates | Bread[2] or | 1/2 slice | 0 1/4 1/2 3/4 All |
| | Cornbread, biscuits, rolls, muffins, etc.[2] or | 1/2 serving | 0 1/4 1/2 3/4 All |
| | Cold dry cereal[3] or | 1/3 cup or 1/2 oz. | 0 1/4 1/2 3/4 All |
| | Cooked pasta or noodle products[2] or | 1/4 cup | 0 1/4 1/2 3/4 All |
| | Cooked cereal grains[3] or | 1/4 cup | 0 1/4 1/2 3/4 All |
| | An equivalent quantity of any combination of bread/bread alternate | 1/4 cup | 0 1/4 1/2 3/4 All |
| Meat and Meat Alternates | Lean meat/poultry/fish or | 1 1/2 oz. | 0 1/4 1/2 3/4 All |
| | Cheese or | 1 1/2 oz. | 0 1/4 1/2 3/4 All |
| | Eggs or | 1 egg | 0 1/4 1/2 3/4 All |
| | Cooked dry beans/peas or | 3/8 cup | 0 1/4 1/2 3/4 All |
| | Peanut butter/soynut butter/other nut seed combinations of butters/Peanuts/soynuts/ tree nuts/seeds or | 3 tablespoons | 0 1/4 1/2 3/4 All |
| | An equivalent quantity of any combination of the above meat/meat alternates | 3/4 oz. = 50% | 0 1/4 1/2 3/4 All |

[1]Must serve 2 or more kinds of vegetable and/or fruit. (Full strength vegetable or fruit juice may be counted to meet not more than 1/2 of requirement.

[2]Must be whole grain or enriched

[3]Must be whole grain, enriched, or fortified

NAME:_____

DAY CARE FACILITY:_____

## OBSERVED FOOD INTAKE
## FORM 1
## SNACKS
## SUPPLEMENTALS - AM or PM

| Food Components | | Standard Ages 3 and 5 | Food Intake |
|---|---|---|---|
| Milk | Milk, fluid | 1/2 cup | 0 1/4 1/2 3/4 All |
| Vegetables and Fruits[1] | Vegetable(s) and/or fruit(s) or | 1/2 cup | 0 1/4 1/2 3/4 All |
| | Full strength vegetable or fruit juice (to meet 1/2 of requirement) or an equivalent quantity of any combination of vegetable(s), fruit(s), and juice | 1/2 cup | 0 1/4 1/2 3/4 All |
| Bread and Bread Alternates | Bread[2] or | 1/2 slice | 0 1/4 1/2 3/4 All |
| | Cornbread, biscuits, rolls, muffins, etc.[2] or | 1/2 serving | 0 1/4 1/2 3/4 All |
| | Cold dry cereal[3] or | 1/3 cup or 1/2 oz. | 0 1/4 1/2 3/4 All |
| | Cooked pasta or noodle products[2] or | 1/4 cup | 0 1/4 1/2 3/4 All |
| | Cooked cereal grains[3] or | 1/4 cup | 0 1/4 1/2 3/4 All |
| | An equivalent quantity of any combination of bread/bread alternate | 1/4 cup | 0 1/4 1/2 3/4 All |

[1]Must serve 2 or more kinds of vegetable and/or fruit. (Full strength vegetable or fruit juice may be counted to meet not more tha
1/2 of requirement.
[2]Must be whole grain or enriched
[3]Must be whole grain, enriched, or fortified

NAME:_____

DAY CARE FACILITY:_____

## OBSERVED FOOD INTAKE
## FORM 2
## SNACKS
## SUPPLEMENTALS - AM or PM

| Food Components | | Standard Ages 3 and 5 | Food Intake |
|---|---|---|---|
| Meat and Meat Alternates | Lean meat or poultry or fish | 1 1/2 oz. | 0 1/4 1/2 3/4 All |
| | or | | |
| | Cheese or | 1 1/2 oz. | 0 1/4 1/2 3/4 All |
| | Eggs or | 1 egg | 0 1/4 1/2 3/4 All |
| | Cooked dry beans or peas | 3/8 cup | 0 1/4 1/2 3/4 All |
| | or | | |
| | Peanut butter or soynut butter other nut or seed combinations of butters/ Peanuts/soynuts/tree nuts/ seeds or | 3 tablespoons | 0 1/4 1/2 3/4 All |
| | Yogurt - Plain/sweetened/ flavored or | 3/4 oz. = 50% | 0 1/4 1/2 3/4 All |
| | An equivalent quantity of any combination of the above meat/meat alternates | 2 oz. or 1/4 cup | 0 1/4 1/2 3/4 All |

[1]Cannot be used to satisfy meat/meat alternate requirement.

**Menu Analysis**
**Computing Procedure**

Compliance with Dietary Guidelines for Americans

Procedure

1. For items 1-8, use the daily menu to evaluate the application of Dietary Guidelines to the menu planning component.

2. For items 9-12, determine the nutrient composition of the menus by means of the Nutritionist 4 Computer program.

3. Circle the letter representing the week day(s) for which the menu does not meet the criteria.

4. To compute the compliance score for each criteria, subtract 1 point for each day that the menu does not meet the criteria.

5. Calculate the total points by subtracting the non compliance points from 48, the total possible.

6. Determine the compliance percentage score by dividing the total points by 48 and multiplying times 100.

Day Care Name:_____ Meal: Breakfast / Lunch

Week of:_____

# Menu Analysis
# Dietary Guidelines for Americans

| CRITERIA | OBSERVATION | COMPLIANCE SCORE |
|---|---|---|
| 1. On no-choice menus, processed meats high in fat and/or sodium, are offered only once per week. (4) | M T W T F | |
| 2. Dry beans or peas are offered at least once per week. (6) | M T W T F | |
| 3. Fresh fruit or vegetable is offered each day. (3) | M T W T F | |
| 4. Bread, bread alternate, or dessert containing whole grain is offered each day. (2) | M T W T F | |
| 5. Unflavored skim or 1% low-fat is offered. (8) | Y N | |
| 6. On no-choice menus, no more than one high-fat menu item is offered at each meal.(5) | M T W T F | |
| 7. Salt shakers are available only on request. (7) | Y N | |
| 8. Butter/margarine is available only on request. (7) | Y N | |
| 9. % calories contributed by fat does not exceed 30%. (1) | M T W T F | |
| 10. % calories contributed by saturated fat does not exceed 10%. (1) | M T W T F | |
| 11. % calories contributed by refined sugar does not exceed 10%. (1) | M T W T F | |
| 12. Sodium content does not exceed 1000 mg. (1) | M T W T F | |
| | TOTAL | |

**Menu Items (Planned vs. Served)**

Computing Directions for
Compliance of Menu Items Planned versus Served

Directions for computing:

1. Compare the menu items and portion sizes which were specified on the written menu provided by the facility with the menu items and portions sizes which were observed. Circle "=" if the portion size was as specified; circle "+" if the serving size was greater than specified; circle "-" if the serving size was less than specified.

2. If a substitution was noted circle "Y", otherwise circle "N". Identify the substitution by writing the name of the new menu item under the menu item for which it was substituted.

3. For any substitution which was appropriate circle "Y", otherwise circle "N".

4. Subtract 1 point for any substitution which was observed.

5. Subtract 1 point for any substitution which is not an equivalent meal component based on Food Buying Guide for Child Nutrition Programs.

6. Subtract 1 point for any item which did not meet the specified serving size.

7. Determine the maximum points which were possible based on the items served.

8. Calculate the total points by subtracting the noncompliance points from the maximum points.

9. Determine the compliance percentage score by dividing the total points by the maximum points and multiplying times 100.

## APPENDIX G

## INSTRUMENTS DEVELOPED FOR DIRECTORS/SPONSORS

**Demographics**

**Questionnaires**

- **Nutrition Knowledge**
- **Nutrition Attitudes**
- **Nutrition Education Practices**

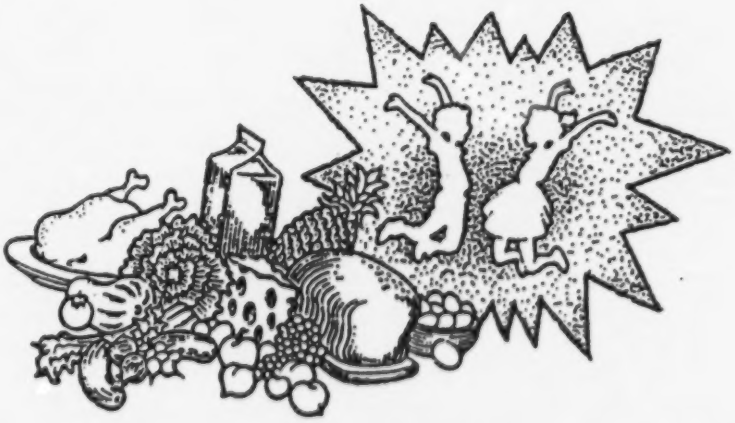
**Key**

- **Goal Indicators**
- **Answers**

**Name of Day Care Center Director:**_____

**Address:**_____
**Street/Box Number** **City** **State** **Zip**

**Name of Day Care Center:**_____



**AN ASSESSMENT OF**
**NUTRITION EDUCATION & TRAINING**
**NEEDS IN TEXAS**

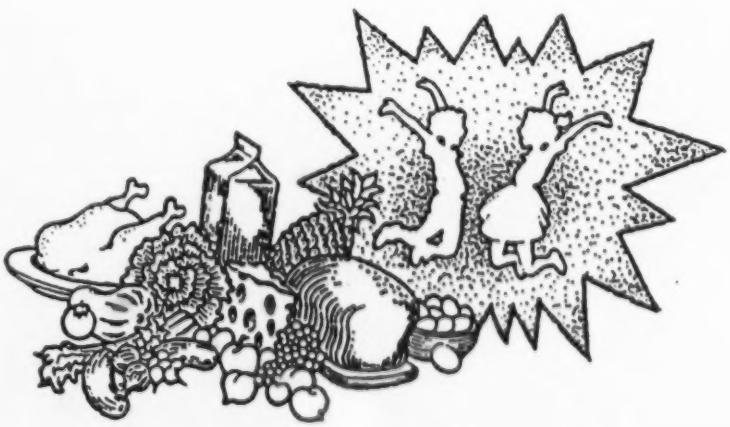
**Director**

**Name of Day Care Sponsor:**_____

**Address:**_____
Street/Box Number City State Zip

**Your Name:**_____

**Service Area:**_____



**AN ASSESSMENT OF**
**NUTRITION EDUCATION & TRAINING**
**NEEDS IN TEXAS**

**Sponsor**

Dear Sponsor:

YOU have been selected to take part in a very important study.

Your help is needed to answer these questions on nutrition education. Please have the parent who does most of the food shopping and preparation complete the questionnaire. The responses of sponsors of child caregivers in Texas will help improve nutrition education in the day care centers.

Please follow these suggestions:

- read the directions to each section and every question carefully and respond; some sections have different directions and response patterns.

- after you have finished the questions, check each page to be sure that you have answered all the items.

- your answers to the questions will be confidential; the results will be used for research purposes only.

THANK YOU!

This study is funded by the Texas Department of Human Services.

Texas Tech University
MS 1162
Lubbock, TX 79409
FAX (806) 742-3042

Project Sponsored by
Texas NET Program
P. O. Box 149030
Austin, TX 78714-9030

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## DEMOGRAPHICS

Directions: Please circle the correct response.

1. Your sex is:
   1. female
   2. male

2. Your ethnic background is:
   1. African-American
   2. American Indian or Alaskan Native
   3. Asian or Pacific Islander
   4. Hispanic
   5. White

3. Your age is:
   1. 20-25
   2. 26-30
   3. 31-35
   4. 36-40
   5. 41-45
   6. Over 46

4. Your highest level of education completed is:
   1. Less than a high school degree
   2. High school or GED
   3. Some college/associate degree
   4. Bachelor's degree
   5. Master's degree
   6. Master's degree plus additional hours
   5. Other_____

5. Your educational background in nutrition is (CIRCLE NUMBER 1 OR 2 FOR EACH RESPONSE):
   - studied nutrition in high school 1. Yes 2. No
   - studied nutrition in college as part of another course 1. Yes 2. No
   - completed college course(s) in nutrition 1. Yes 2. No
   - specify number of college credit hours in nutrition, if applicable _____

6. Years you have been a sponsor (include this year):
   1. less than five
   2. 5-10
   3. 11-20
   4. 21-30
   5. more than 30

6a. Number of child care facilities you sponsor:_____

NUTRITION ATTITUDE ASSESSMENT

Directions: Please CIRCLE the number that best describes how you feel about each of the following statements.

The value 5 represents "strongly agree"; 4 represents "agree"; 3 represents "unsure"; 2 represents "disagree"; and 1 represents "strongly disagree".

| | | Strongly Agree | Agree | Unsure | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|
| 1. | Good nutrition is important to a child's ability to learn. | 5 | 4 | 3 | 2 | 1 |
| 2. | I am not interested in nutrition. | 5 | 4 | 3 | 2 | 1 |
| 3. | What I like to eat makes a difference with the food I serve. | 5 | 4 | 3 | 2 | 1 |
| 4. | People need to eat a variety of vegetables, fruits and grains each day. | 5 | 4 | 3 | 2 | 1 |
| 5. | I like to try new foods. | 5 | 4 | 3 | 2 | 1 |
| 6. | I would rather take a vitamin pill than change the way that I eat. | 5 | 4 | 3 | 2 | 1 |
| 7. | Maintaining a healthy weight depends on food eaten and exercise. | 5 | 4 | 3 | 2 | 1 |
| 8. | The foods I eat now will affect my future health. | 5 | 4 | 3 | 2 | 1 |
| 9. | It is important to choose a diet low in fat, saturated fat and cholesterol. | 5 | 4 | 3 | 2 | 1 |
| 10. | Too much money is spent on nutrition education. | 5 | 4 | 3 | 2 | 1 |
| 11. | Breakfast is an important meal for good performance in daily tasks. | 5 | 4 | 3 | 2 | 1 |
| 12. | People outgrow their need for drinking milk. | 5 | 4 | 3 | 2 | 1 |

## NUTRITION EDUCATION

Directions: Please respond to the following questions by circling the number in front of the appropriate response.

1. Is nutrition taught in any of the child care facility that you direct?
   1. Yes
   2. No

2. If nutrition is taught in the child care center(s), how? (CIRCLE NUMBER 1 OR 2 FOR EACH RESPONSE)

| | |
|---|---|
| • as a separate topic | 1. Yes 2. No |
| • as part of the lunch program | 1. Yes 2. No |
| • integrated in with other activities | 1. Yes 2. No |
| • do not teach nutrition | 1. Yes 2. No |

3. The person that functions as the nutrition coordinator in my child care center(s) is: (CIRCLE NUMBER 1 OR 2 FOR EACH RESPONSE)

| | |
|---|---|
| • cook | 1. Yes 2. No |
| • lead teacher | 1. Yes 2. No |
| • self | 1. Yes 2. No |
| • food service director | 1. Yes 2. No |
| • no one | 1. Yes 2. No |

Other, please specify_____

4. Key nutrition concepts taught in my child care center: (CIRCLE NUMBER 1 OR 2 FOR EACH RESPONSE)

| | |
|---|---|
| • consumer skills | 1. Yes 2. No |
| • dietary guidelines | 1. Yes 2. No |
| • food preferences | 1. Yes 2. No |
| • food safety/sanitation | 1. Yes 2. No |
| • food traditions | 1. Yes 2. No |
| • function of nutrients to maintain health | 1. Yes 2. No |
| • healthy food choices | 1. Yes 2. No |
| • nutrition and fitness | 1. Yes 2. No |
| • nutritional needs | 1. Yes 2. No |
| • self-responsible choices | 1. Yes 2. No |

Other, please specify_____

5. Resources used to help caregivers in my child care center(s) acquire nutrition knowledge are: (CIRCLE NUMBER 1 OR 2 FOR EACH RESPONSE)

- American Cancer Society 1. Yes 2. No
- American Dairy Council 1. Yes 2. No
- American Heart Association 1. Yes 2. No
- American Milk Producers, Incorporated 1. Yes 2. No
- Cooperative Extension Service 1. Yes 2. No
- Inservice training 1. Yes 2. No
- NET/TDHS resource materials 1. Yes 2. No
- NET/TDHS workshops fitness 1. Yes 2. No
- textbooks 1. Yes 2. No

6. In my opinion, the three most effective methods of teaching nutrition for all children are: (CIRCLE ONLY THREE NUMBERS)

01. activities during the meal service
02. caregiver(s) eating meals with children
03. caregiver(s) eating the same foods as those served to children
04. children helping prepare food
05. classroom learning center activities
06. discussions
07. family style meal service
08. field trips
09. media (film, video)
10. tasting party

Other, please specify_____

7. In my opinion, the three most effective methods of teaching nutrition to multicultural/minority children are: (CIRCLE ONLY THREE NUMBERS)

01. activities during the meal service
02. caregiver(s) eating meals with children
03. caregiver(s) eating the same foods as those served to children
04. children helping prepare food
05. classroom learning center activities
06. discussions
07. family style meal service
08. field trips
09. media (film, video)
10. tasting party

Other, please specify_____

8. Rank the following factors from "1" as most effective in teaching nutrition to "5" as least effective.

_____ aid and encouragement from child care center director
_____ aid and encouragement from child care center cook
_____ current information on key nutrition issues
_____ inservice training for caregivers
_____ current nutrition education curriculum for children

9. The types of nutrition education inservice for caregivers should be on: (CIRCLE NUMBER 1 OR 2 FOR EACH RESPONSE)

- curriculum development for specific ages 1. Yes 2. No
- development of teaching activities 1. Yes 2. No
- information on nutrition as a science 1. Yes 2. No
- nutrition content for specific ages 1. Yes 2. No
- teaching methods 1. Yes 2. No

Other, please specify_____

10. Which factors inhibit teaching nutrition? (CIRCLE NUMBER 1 OR 2 FOR EACH RESPONSE)

- insufficient funds to support nutrition education 1. Yes 2. No
- lack of interest among parents, directors & caregivers 1. Yes 2. No
- lack of time to plan, coordinate, implement 1. Yes 2. No
- calendars too full with other activities 1. Yes 2. No
- shortage of education materials 1. Yes 2. No
- caregivers do not want to eat with children 1. Yes 2. No
- family style meal service is too messy and/or too slow 1. Yes 2. No

Other, please specify_____

11. Do caregivers in your child care center(s) use the following to teach nutrition? (CIRCLE NUMBER 1 OR 2 FOR EACH RESPONSE)

- audio-visual materials 1. Yes 2. No
- meal service 1. Yes 2. No
- commodity foods 1. Yes 2. No
- USDA child nutrition program 1. Yes 2. No
- child care center library 1. Yes 2. No

12. If the cook is involved in nutrition at your child care center(s), how? (CIRCLE NUMBER 1 OR 2 FOR EACH RESPONSE)

- eating with the children 1. Yes 2. No
- classroom discussions 1. Yes 2. No
- nutrition education programs during meal service 1. Yes 2. No
- tasting parties 1. Yes 2. No

Other, please specify_____

13. The types of nutrition education available in the eating area are: (CIRCLE NUMBER 1 OR 2 FOR EACH RESPONSE)

- caregivers eating with the children 1. Yes 2. No
- caregivers eating the same foods as the children 1. Yes 2. No
- family style meal service 1. Yes 2. No
- talks on nutrition 1. Yes 2. No

Other, please specify_____

14. Do you find your eating area is a cheerful and relaxing place for children to eat their child care center meals?

1. Yes
2. No

15. Please circle all items with which you agree (CIRCLE NUMBER 1 OR 2 FOR EACH RESPONSE)

- Caregivers should sponsor tasting parties in the classroom — 1. Yes 2. No
- I support tasting parties in the eating area — 1. Yes 2. No
- Cooks should be invited to teach nutrition in the classroom — 1. Yes 2. No
- There is limited time for nutrition education during meal service — 1. Yes 2. No
- Caregivers should participate in nutrition education during meal service — 1. Yes 2. No
- Children should be encouraged to notice nutrition posters and materials in the cafeteria — 1. Yes 2. No
- Caregivers seldom eat meals in the cafeteria — 1. Yes 2. No
- Caregivers should eat the same foods served to children — 1. Yes 2. No
- Meals should be served family style at the child care center — 1. Yes 2. No

16. Check each of the following food service operational activities that you provide: (CIRCLE NUMBER 1 OR 2 FOR EACH RESPONSE)

- budget — 1. Yes 2. No
- cafeteria environment — 1. Yes 2. No
- compliance — 1. Yes 2. No
- family style meal service — 1. Yes 2. No
- food quality — 1. Yes 2. No
- maintenance — 1. Yes 2. No
- safety and sanitation — 1. Yes 2. No
- scheduling — 1. Yes 2. No
- special events — 1. Yes 2. No
- staffing — 1. Yes 2. No

Other, please specify_____

17. On the <u>day to day</u> food service operation, which ONE of the following described the decision-making structure?
(CIRCLE ONLY ONE)

1. I make all the decisions.
2. My cook makes all the decisions.
4. I make most of the decisions.
5. My cook makes most of the decisions.

Other, please specify_____

This is the end of the Questionnaire
THANK YOU FOR PARTICIPATING!

Key for Questionnaire - Sponsors/Directors

| GOAL/Criteria | Question Number (Answer Number) |
|---|---|
| NUTRITION KNOWLEDGE | |
| • nutrition and health/fitness | 4(2);9(4);10(4);11(1); 12(3);13(2);14(3) |
| • nutrition and learning | 1(4);2(3)3(1);5(2);6(2) 7(2);8(4) |
| NUTRITION ATTITUDE | |
| • Nutrition | |
| healthy food choices | -3;+4 |
| nutrition and health/fitness | +7;+8 |
| self-responsibility for food selection | +5;-6 |
| nutrition and learning | +1;+11 |
| nutrition needs | -12 |
| functions of nutrients in maintaining health | +9 |
| • Nutrition education | -2;+10 |

Dear Director:

Nutrition education is an important responsibility for everyone. Your role in sponsoring child care facilities is related to the
positive support of nutrition education. A statewide study of assessing the nutrition education training needs of children,
parents, teachers, food service, and administrators is underway in Texas. Your input on nutrition education would be a contribution.

- Please read the directions and respond to every question.

- Your answers to the questions will be confidential.

THANK YOU!

Texas Tech University
Dr. Ruth Martin, NET
P. O. Box 41162
Lubbock, TX 79409-1162
Phone: (806) 742-2978
FAX: (806) 742-3042

Sponsored by Texas NET Program
Austin, TX 78714-9030

## DEMOGRAPHICS

Directions: Please circle the correct response.

1. Your sex is:
   1. female
   2. male

2. Your ethnic background is:
   1. African-American
   2. American Indian or Alaskan Native
   3. Asian or Pacific Islander
   4. Hispanic
   5. White

3. Your age is:
   1. 20-25
   2. 26-30
   3. 31-35
   4. 36-40
   5. 41-45
   6. Over 46

4. Your highest level of education completed is:
   1. Less than a high school degree
   2. High school or GED
   3. Some college/associate degree
   4. Bachelor's degree
   5. Master's degree
   6. Master's degree plus additional hours
   5. Other_____

5. Your educational background in nutrition is (CIRCLE NUMBER 1 OR 2 FOR EACH RESPONSE):
   - studied nutrition in high school 1. Yes 2. No
   - studied nutrition in college as part of another course 1. Yes 2. No
   - completed college course(s) in nutrition 1. Yes 2. No
   - specify number of college credit hours in nutrition, if applicable _____

6. Years you have been a sponsor (include this year):
   1. less than five
   2. 5-10
   3. 11-20
   4. 21-30
   5. more than 30

7. Would you like to know more about nutrition?
   1. Yes
   2. No

8. Would you like to know more about (CIRCLE NUMBER 1 OR 2 FOR EACH RESPONSE):

| | |
|---|---|
| • Basic Four Food Groups | 1. Yes 2. No |
| • consumer skills | 1. Yes 2. No |
| • Dietary Guidelines for Americans | 1 Yes 2. No |
| • food guide pyramids | 1. Yes 2. No |
| • food preferences | 1. Yes 2. No |
| • food safety/sanitation | 1. Yes 2. No |
| • food traditions | 1. Yes 2. No |
| • function of nutrients | 1. Yes 2. No |
| • healthy food choices | 1. Yes 2. No |
| • nutrition and fitness | 1. Yes 2. No |
| • nutritional needs | 1. Yes 2. No |
| • self-responsibility for food choices | 1. Yes 2. No |

other, please specify_____

9. Would you like to know more about the relationship between nutrition and (CIRCLE NUMBER 1 OR 2 FOR EACH RESPONSE):

| | |
|---|---|
| • health | 1. Yes 2. No |
| • physical fitness | 1. Yes 2. No |
| • learning | 1. Yes 2. No |

other, please specify_____

10. If you were participating in nutrition education which type of training format would you prefer? (CIRCLE ONE)

1. group discussion
3. lecture
4. videotapes - self instruction
5. books - self instruction
6. workshop
7. other (Please specify)_____

## NUTRITION KNOWLEDGE

Directions: For each item draw a circle around the number of the best (most correct) answer.

1. Seriously undernourished children have:
   1. LARGER HEADS AND HIGHER BRAIN WEIGHTS THAN WELL-NOURISHED CHILDREN
   2. LARGER HEADS AND LOWER BRAIN WEIGHTS THAN WELL-NOURISHED CHILDREN
   3. SMALLER HEADS AND HIGHER BRAIN WEIGHTS THAN WELL-NOURISHED CHILDREN
   4. SMALLER HEADS AND LOWER BRAIN WEIGHTS THAN WELL-NOURISHED CHILDREN

2. Of the following statements about hunger and undernutrition, which one is true?
   1. HUNGER IS REVERSIBLE AND MAY HAVE PERMANENT BAD EFFECTS.
   2. HUNGER IS IRREVERSIBLE AND MAY HAVE PERMANENT BAD EFFECTS.
   3. UNDERNUTRITION REQUIRES TREATMENT WITH POSSIBLE PERMANENT EFFECTS.
   4. UNDERNUTRITION HAS LENGTHY TREATMENT WITH NO PERMANENT EFFECTS.

3. When the body has adequate food, the brain undergoes a critical period of development and growth spurt during the following time period:
   1. BIRTH TO 2 YEARS
   2. 2-5 YEARS
   3. 3-6 YEARS
   4. 6-9 YEARS

4. A major benefit of fiber is that it:
   1. DOES NOT COST VERY MUCH.
   2. HELPS PREVENT CANCER.
   3. HELPS PREVENT COLDS.
   4. IS FOUND IN ALL FOODS.

5. When children eat breakfast their maximum output:
   1. DECREASES AT FIRST, THEN INCREASES.
   2. INCREASES CONTINUOUSLY.
   3. REMAINS THE SAME.
   4. INCREASES AT FIRST, THEN DECREASES.

6. Studies have revealed that students who eat a balanced breakfast had test scores:
   1. SOMEWHAT HIGHER THAN THOSE WHO ATE THE UNBALANCED BREAKFAST.
   2. SIGNIFICANTLY HIGHER THAN THOSE WHO ATE THE UNBALANCED BREAKFAST.
   3. SOMEWHAT LOWER THAN THOSE WHO ATE THE UNBALANCED BREAKFAST.
   4. SIGNIFICANTLY LOWER THAN THOSE WHO ATE THE UNBALANCED BREAKFAST.

7. Low mental development and low physical activity of children is largely due to:
   1. DEFICIENCY OF VITAMIN E.
   2. DEFICIENCY OF IRON.
   3. LACK OF CALCIUM.
   4. LOW INTAKE OF VITAMIN C.

8. Hungry child care children exhibit:
   1. HIGH ATTENTIVENESS DUE TO LOW BLOOD SUGAR LEVELS.
   2. HIGH DILIGENCE DUE TO HIGH BLOOD SUGAR LEVELS.
   3. LOW PERFORMANCE DUE TO HIGH BLOOD SUGAR LEVELS.
   4. LOW CONCENTRATION DUE TO LOW BLOOD SUGAR LEVELS.

9. A nutrient-dense food is one that provides:
   1. FEW NUTRIENTS COMPARED TO CALORIES.
   2. MANY CALORIES BUT FEW NUTRIENTS.
   3. MANY CALORIES BUT NO NUTRIENTS.
   4. MANY NUTRIENTS COMPARED TO CALORIES.

10. The long-term effects of eating too many foods high in SUGAR could be:
   1. DIABETES MELLITUS
   2. HIGH BLOOD PRESSURE
   3. MESOBLASTIC ANEMIA
   4. OBESITY/HEART DISEASE

11. Maintaining ideal body weight can reduce the risk of:
   1. DIABETES
   2. HEPATITIS
   3. MONONUCLEOSIS
   4. TUBERCULOSIS

12. The Dietary Guidelines for Americans are primarily for:
   1. ADOLESCENTS
   2. CHILDREN
   3. HEALTHY PEOPLE
   4. PEOPLE ON DIETS

13. One of the most important factors in losing weight is:
   1. DECREASING ACTIVITIES
   2. INCREASING EXERCISE
   3. INCREASING PROTEIN FOODS
   4. SKIPPING MEALS

14. Which of the following is a TRUE statement?
    1. A HIGH-PROTEIN DIET IS NECESSARY TO BUILD MUSCLES
    2. GRAPEFRUIT BREAKS DOWN BODY FAT
    3. MILK IS NEEDED AT ALL AGES FOR CALCIUM
    4. THE COLOR OF EGGS AFFECTS THE NUTRITIONAL VALUE

## NUTRITION ATTITUDE

Directions: Please CIRCLE the number that best describes how you feel about each of the following statements. The value 5 represents "strongly agree"; 4 represents "agree"; 3 represents "unsure"; 2 represents "disagree"; and 1 represents "strongly disagree".

| | | Strongly Agree | Agree | Unsure | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|
| 1. | Good nutrition is important to a child's ability to learn. | 5 | 4 | 3 | 2 | 1 |
| 2. | I am not interested in nutrition. | 5 | 4 | 3 | 2 | 1 |
| 3. | Foods people like to eat are the best foods to serve their children. | 5 | 4 | 3 | 2 | 1 |
| 4. | People need to eat a variety of vegetables, fruits and grains each day. | 5 | 4 | 3 | 2 | 1 |
| 5. | I like to try new foods. | 5 | 4 | 3 | 2 | 1 |
| 6. | I would rather take a vitamin pill than change the way that I eat. | 5 | 4 | 3 | 2 | 1 |
| 7. | Maintaining a healthy weight depends on food eaten and exercise. | 5 | 4 | 3 | 2 | 1 |
| 8. | The foods I eat now will affect my future health. | 5 | 4 | 3 | 2 | 1 |
| 9. | People should be concerned with the amount of fat and cholesterol in their diet. | 5 | 4 | 3 | 2 | 1 |
| 10. | Too much money is spent on nutrition education. | 5 | 4 | 3 | 2 | 1 |
| 11. | Breakfast is an important meal for good performance in daily tasks. | 5 | 4 | 3 | 2 | 1 |
| 12. | People outgrow their need for drinking milk. | 5 | 4 | 3 | 2 | 1 |

## NUTRITION EDUCATION

Directions: Please respond to the following questions by circling the number in front of the appropriate response.

1. Is nutrition taught in your child care facility?
   1. Yes
   2. No

2. If nutrition is taught in the child care center, how?
   (CIRCLE NUMBER 1 OR 2 FOR EACH RESPONSE)

| | |
|---|---|
| • as a separate topic | 1. Yes 2. No |
| • as part of the lunch program | 1. Yes 2. No |
| • integrated in with other activities | 1. Yes 2. No |
| • do not teach nutrition | 1. Yes 2. No |

3. The person that functions as the nutrition coordinator in my child care center is:
   (CIRCLE NUMBER 1 OR 2 FOR EACH RESPONSE)

| | |
|---|---|
| • cook | 1. Yes 2. No |
| • lead teacher | 1. Yes 2. No |
| • self | 1. Yes 2. No |
| • food service manager | 1. Yes 2. No |
| • no one | 1. Yes 2. No |

   Other, please specify_____

4. Key nutrition concepts taught in my child care center:
   (CIRCLE NUMBER 1 OR 2 FOR EACH RESPONSE)

| | |
|---|---|
| • consumer skills | 1. Yes 2. No |
| • dietary guidelines | 1. Yes 2. No |
| • food preferences | 1. Yes 2. No |
| • food safety/sanitation | 1. Yes 2. No |
| • food traditions | 1. Yes 2. No |
| • function of nutrients to maintain health | 1. Yes 2. No |
| • healthy food choices | 1. Yes 2. No |
| • nutrition and fitness | 1. Yes 2. No |
| • nutritional needs | 1. Yes 2. No |
| • self-responsible choices | 1. Yes 2. No |

   Other, please specify_____

5. Resources used to help caregivers in my child care center acquire nutrition knowledge are:
   (CIRCLE NUMBER 1 OR 2 FOR EACH RESPONSE)

| | |
|---|---|
| • American Cancer Society | 1. Yes 2. No |
| • American Dairy Council | 1. Yes 2. No |
| • American Heart Association | 1. Yes 2. No |
| • American Milk Producers, Incorporated | 1. Yes 2. No |
| • Cooperative Extension Service | 1. Yes 2. No |
| • Inservice training | 1. Yes 2. No |
| • NET/TDHS resource materials | 1. Yes 2. No |
| • NET/TDHS workshops fitness | 1. Yes 2. No |
| • textbooks | 1. Yes 2. No |

6. In my opinion, the three most effective methods of teaching nutrition for all children are: (CIRCLE ONLY THREE NUMBERS)

01. activities during the meal service
02. caregiver(s) eating meals with children
03. caregiver(s) eating the same foods as those served to children
04. children helping prepare food
05. classroom learning center activities
06. discussions
07. family style meal service
08. field trips
09. media (film, video)
10. tasting party

Other, please specify_____

7. In my opinion, the three most effective methods of teaching nutrition to multicultural/minority children are: (CIRCLE ONLY THREE NUMBERS)

01. activities during the meal service
02. caregiver(s) eating meals with children
03. caregiver(s) eating the same foods as those served to children
04. children helping prepare food
05. classroom learning center activities
06. discussions
07. family style meal service
08. field trips
09. media (film, video)
10. tasting party

Other, please specify_____

8. Rank the following factors from "1" as most effective in teaching nutrition to "5" as least effective.

_____ aid and encouragement from child care center director
_____ aid and encouragement from child care center cook
_____ current information on key nutrition issues
_____ inservice training for caregivers
_____ current nutrition education curriculum for children

9. The types of nutrition education inservice for caregivers should be on: (CIRCLE NUMBER 1 OR 2 FOR EACH RESPONSE)

- curriculum development for specific ages 1. Yes 2. No
- development of teaching activities 1. Yes 2. No
- information on nutrition as a science 1. Yes 2. No
- nutrition content for specific ages 1. Yes 2. No
- teaching methods 1. Yes 2. No

Other, please specify_____

10. Which factors inhibit teaching nutrition? (CIRCLE NUMBER 1 OR 2 FOR EACH RESPONSE)

- insufficient funds to support nutrition education 1. Yes 2. No
- lack of interest among parents, directors & caregivers 1. Yes 2. No
- lack of time to plan, coordinate, implement 1. Yes 2. No
- calendars too full with other activities 1. Yes 2. No
- shortage of education materials 1. Yes 2. No
- caregivers do not want to eat with children 1. Yes 2. No
- family style meal service is too messy and/or too slow 1. Yes 2. No

Other, please specify_____

11. Do caregivers in your child care center use the following to teach nutrition? (CIRCLE NUMBER 1 OR 2 FOR EACH RESPONSE)

- audio-visual materials 1. Yes 2. No
- meal service 1. Yes 2. No
- commodity foods 1. Yes 2. No
- USDA child nutrition program 1. Yes 2. No
- child care center library 1. Yes 2. No

12. **If the cook is involved in nutrition at your child care center, how?**
(CIRCLE NUMBER 1 OR 2 FOR EACH RESPONSE)

| | |
|---|---|
| • eating with the children | 1. Yes 2. No |
| • classroom discussions | 1. Yes 2. No |
| • nutrition education programs during meal service | 1. Yes 2. No |
| • tasting parties | 1. Yes 2. No |

Other, please specify_____

13. The types of nutrition education available in the eating area are:
(CIRCLE NUMBER 1 OR 2 FOR EACH RESPONSE)

| | |
|---|---|
| • caregivers eating with the children | 1. Yes 2. No |
| • caregivers eating the same foods as the children | 1. Yes 2. No |
| • family style meal service | 1. Yes 2. No |
| • talks on nutrition | 1. Yes 2. No |

Other, please specify_____

14. Do you find your eating area is a cheerful and relaxing place for children to eat their child care center meals?

1. Yes
2. No

15. Please circle all items with which you agree
(CIRCLE NUMBER 1 OR 2 FOR EACH RESPONSE)

| | |
|---|---|
| • Caregivers should sponsor tasting parties in the classroom | 1. Yes 2. No |
| • I support tasting parties in the eating area | 1. Yes 2. No |
| • Cooks should be invited to teach nutrition in the classroom | 1. Yes 2. No |
| • There is limited time for nutrition education during meal service | 1. Yes 2. No |
| • Caregivers should participate in nutrition education during meal service | 1. Yes 2. No |
| • Children should be encouraged to notice nutrition posters and materials in the eating area | 1. Yes 2. No |
| • Caregivers seldom eat meals in the eating area | 1. Yes 2. No |
| • Caregivers should eat the same foods served to children | 1. Yes 2. No |
| • Meals should be served family style at the child care center | 1. Yes 2. No |

16. Check each of the following food service operational activities that you provide:
(CIRCLE NUMBER 1 OR 2 FOR EACH RESPONSE)

| | |
|---|---|
| • budget | 1. Yes 2. No |
| • eating area environment | 1. Yes 2. No |
| • compliance | 1. Yes 2. No |
| • family style meal service | 1. Yes 2. No |
| • food quality | 1. Yes 2. No |
| • maintenance | 1. Yes 2. No |
| • safety and sanitation | 1. Yes 2. No |
| • scheduling | 1. Yes 2. No |
| • special events | 1. Yes 2. No |
| • staffing | 1. Yes 2. No |

Other, please specify_____

17. On the <u>day to day</u> food service operation, which ONE of the following describes the decision-making structure? (CIRCLE ONLY ONE)

1. I make all the decisions.
2. My cook makes all the decisions.
4. I make most of the decisions.
5. My cook makes most of the decisions.

Other, please specify_____



This is the end of the Questionnaire
THANK YOU FOR PARTICIPATING!

Key for Questionnaire - Sponsors/Directors

| GOAL/Criteria | Question Number (Answer Number) |
|---|---|
| NUTRITION KNOWLEDGE | |
| • nutrition and health/fitness | 4(2);9(4);10(4);11(1); 12(3);13(2);14(3) |
| • nutrition and learning | 1(4);2(3)3(1);5(2);6(2) 7(2);8(4) |
| NUTRITION ATTITUDE | |
| • Nutrition | |
| healthy food choices | -3; +4 |
| nutrition and health/fitness | +7; +8 |
| self-responsibility for food selection | +5;-6 |
| nutrition and learning | +1; +11 |
| nutrition needs | -12 |
| functions of nutrients in maintaining health | +9 |
| • Nutrition education | -2; +10 |

## APPENDIX H

## FORMS FOR SECURING REQUIRED APPROVALS

- **Invitation**
- **Provider**
- **Director**
- **Sponsor**
- **Parent**
- **Parent Consent Form**

Month Date, 1995

Dear Administrator:

We are writing to ask you to participate in the "Nutrition Education Training Needs in Texas Project". All of us, including the Texas Department of Human Services (Nutrition Education and Training Program) are concerned about the eating habits of children. Your daycare facility has been randomly selected to take part in a very important study on children's nutrition knowledge, attitudes, and practices (ages 3 and 5).

Please complete the form below to indicate that you will participate in this project. The requested information is needed for planning a site visit to your daycare facility. More details on scheduling the site visit, to collect information on children's nutrition status and diet habits, will be shared with you upon your response.
Your response to this request by **January 30, 1995**, will be appreciated. Look forward to hearing from you.

Sincerely,

Ruth E. Martin, Ph.D.
Principal Investigator

**Detach here and return in the self addressed envelope.**

* * * \

Month Date, 1995

Dear Provider:

A major study on the nutritional needs of children ages 3 and 5 is "going on" in Texas. Your care of children relates to their understanding of food and nutrition.

Your cooperation can make a major difference in the success of this study! All responses will be confidential -- you will not be identified except for data coding needs. Findings will be used to help meet the needs of caregivers for nutrition education.

Please follow the directions on the enclosed booklet and return it in the envelope provided. If you would like a summary of the results, please write your name and address on the back of the return envelope. For participating, your name will be included in a drawing to receive nutritional materials for you and your center!

Your returning the completed booklet by May 8 will be greatly appreciated. If you have questions, call me at 806-742-2978 or FAX to 806-742-3042. Thank you!

Sincerely,

Ruth E. Martin, Ph.D.
NET Project
Texas Tech University

rem/wt
Encl.

Month Date, 1995

Dear Director:

A major study on the nutritional needs of children ages 3 and 5 is "going on" across the state. In addition to mail questionnaires, on-site visits to child care facilities are also being made as we assess children's nutrition knowledge, attitudes, and practices.

Your cooperation can make a major difference in the success of this study. All responses will be confidential and you will not be identified. Please follow the directions on the enclosed booklets for you, your lead teacher, and food service manager. Please distribute these booklets to the appropriate people for their completion; all booklets can be returned in the envelope provided. If you need additional booklets for your staff, feel free to copy them or call me.

As an expression of appreciation for your participation, your names will be placed in a pool for complimentary nutrition material. If you would like a summary of the results, please write your name and address on the back of the return envelope. Your returning the completed booklet by May 15 will be greatly appreciated. If you have questions, call me at 806-742-2978 or FAX to 806-742-3042. Thank you! This project cannot be done without your help.

Sincerely,

Ruth Martin
NET Project
Texas Tech University

REM/wt

Month Date, 1995

Dear Sponsor,

If you haven't heard by now, a major study on the nutritional needs of children ages 3 and 5 is "going on" across the state. On-site visits to child care facilities are being made as we assess children's nutrition knowledge, attitudes, and practices. Your involvement with children's child care is related to their nutritional status.

Your cooperation can make a major difference in the success of this study. All responses will be confidential and you will not be identified. Please follow the directions on the enclosed booklet and return it in the enclosed envelope.

If you would like a summary of the results, please write your name and address on the back of the return envelope. Your returning the completed booklet by May 1 will be greatly appreciated. If you have questions, call me at 806-742-2978 or FAX to 806-742-3042. Thank you.

Sincerely,

Ruth Martin
NET Project
Texas Tech University

Month Date, 1995

Dear Parent/Guardian:

Healthy eating can make a big difference in the development of children. The administrator of your day care facility has agreed to take part in a nutrition survey. You are needed to help with this work to benefit the children of Texas. Your child may be selected to answer questions on foods and eating habits.

The person in your home who buys and prepares most of the food should answer the questionnaire. The Family Medical History and Student Consent Form also need to be completed. Please send these completed forms back to your day care facility as soon as possible. If you have questions please call Willie Tatum at (806) 742-2978.

Thank you for your help! All of the information will be treated confidentially.

Sincerely,

Ruth E. Martin, Ph.D.
Principal Investigator

Enclosures: Student Consent Form
Family Medical History
Questionnaire

REM/wt

CONSENT FORM*

I give permission for my child to take part in the project **Nutrition Education Training Needs in Texas**. My child will be answering to a questions on nutrition knowledge, attitudes and habits. Physical fitness will also be measured. The total duration of my child's participation will be approximately 20 minutes.

I understand that all information which I (and my child) give will remain confidential and only the total results from the whole study will be released. No personal information will be released by name to anyone. No payment will be made and my child may withdraw from the study at any time. Texas Tech University and Texas Department of Human Services will have access to information collected for this study; all information will remain confidential.

The person responsible for this project is Ruth E. Martin, Ph.D., Texas Tech University Faculty, telephone number (806) 742-2978. Dr. Martin has agreed to answer any inquiries I may have concerning the procedures and has informed me that I may contact the Texas Tech University Institutional Review Board for the Protection of Human Subjects by writing them in care of the Office of Research Services, Texas Tech University, Lubbock, Texas 79409.

Check YES or NO to the list of measures to be taken. I give my permission for the following measures to be taken--all free of charge:

| | YES | NO |
|---|---|---|
| Height | ____ | ____ |
| Weight | ____ | ____ |
| Approximate body fat | ____ | ____ |
| Count of teeth | ____ | ____ |
| Short interview with your child | ____ | ____ |

Name of Child_____ Child's S/S #___-___-___

Child's Date of Birth _____ Check One: Male___ Female___
(Day) (Month) (Year)

Signature of Parent/Guardian_____ Date:_____

Signature of Project Investigator_____ Date:_____

*If this research project causes any physical injury to participants in this project, treatment is not necessarily available at Texas Tech University Student Health Center; insurance is carried by the University or its personnel applicable to cover any such injury. Further information about these matters may be obtained from Dr. Robert M. Sweazy, Vice Provost for Research, (806) 742-2884, Room 203 Holden Hall, Texas Tech University, Lubbock, TX 79409-1035.

## APPENDIX I

## DATA COLLECTION PROCEDURES

### Team Training

- Objectives
- Prodcedures
- Checklist

### Travel Protocol

- Schedule
- Types of Travel



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TRAINING AGENDA
for
DATA COLLECTION TEAM

ORIENTATION TO NET RESEARCH PROJECT

DATA COLLECTION OBJECTIVES

PROCEDURES FOR DATA COLLECTION:

- Nutrition knowledge, attitudes, practices
- Health and physical fitness
- Food service operation and observed intake
- Check list

TRAVEL GUIDELINES

- Schedule of site visits
- Ground travel
- Plane travel
- Lodging

NET TRAINING SESSION
for
DATA COLLECTION TEAM

**PURPOSE:**

The purpose of the NET training session is to train members of the team to collect data on site from the target populations(s) at the randomly selected child care homes and centers. (The data are needed to help determine the nutrition knowledge, attitudes, and practices of the target populations (children in pre-school; their parents; educators/teachers, food service personnel, and administrators) to determine the need for nutrition education and the relationship between the variables and physical fitness and learning).

A secondary purpose is to have control over the data collection tasks to promote standardization in this phase of the project. Specifically, the objectives were to:

(1) identify the procedures for collecting the data from the child care sites including:
   a) instruments from children (ages 3-5);
   b) instruments from parents of children;
   c) instruments from educators/teachers;
   d) instruments from food service personnel;
   e) instruments from administrator (Directors, Sponsors);
   f) parental permission slips; and
   g) assessment of children (with parental approval for physical fitness, learning and food intake).

**ON SITE VISIT:**

Data collection team members:

**Arrival at site**: prior to breakfast and snack and/or prior to lunch and snack to accommodate the assessment of food intake and food service operation.

(1) Check with the site administrator on arrival. Request completed NET instruments for the appropriate target population (parents, teachers/providers, food service, directors and sponsors)

(2) Secure a list of names of children with parental permission.

(3) Dietitian: Observe the operational practices of the food service personnel using the appropriate form.

(4) Interview children individually for knowledge, attitudes, and food choices taking into consideration the approved list.

(5) Use list of approved children for health assessment including height, weight, skinfolds, and dental information.

(6) Dietitian: Use list of approved students to "track" them in eating area for nutrition practices (observed food intake).

To promote completeness of the site visit, a check list, in this Appendix, was developed for team members to complete prior to leaving the child care site.

**CHILDREN'S ASSESSMENT**

Be sure that the children identified for the on-site assessment have signed Parental Consent Forms. Each child will be assessed individually for all of the goal criteria: Nutrition knowledge, attitudes, food choices, and health and physical fitness. If a separate room is not available for the individual assessments, use a corner or an area which provides as much privacy as possible. For these children the guidelines are as follows:

Try to establish a friendly atmosphere where the child feels comfortable and accepted. Your friendliness can help in setting the stage for the assessment.

Nutrition Knowledge:
It will help if you are seated where the child is face to face with you. Having eye contact is important in reading the question. For the nutrition knowledge, the child's name, gender and child care site will be recorded on the questionnaire. Read each of the knowledge questions slowly and clearly to the child. The individual questions have the reader's script on the reverse side of the picture which the child will need to see. These individual laminated picture questions are numbered on the recorded form and on the reverse side of the 8.5"x11" picture form. Thus, as the child responds to each question (A or B), the reader records the child's response. Continue the process until all questions are administered: 4 questions for 3 and 4 year olds, and 8 questions for 5 year olds.

Nutrition Attitudes:
The assessment with each child will continue with the measurement of attitudes. The attitude statements will be read; the child will respond by pointing to a face with a smile (positive) or a face with a frown (negative). These expressions are drawn on a manilla folder which can easily be seen by the child. These responses will be recorded by the reader on the child's assessment form.

Food Choices:
This is the last section for the nutrition assessment. The food models will need to be set up in order of the questions prior to the oral administration. As the reader asks the child each question, the responses will be recorded on the questionnaire form by the reader. The process of reading the questions continues until all the food model questions are completed.

Physical Assessment:
Refer to the Instructions for Physical Exam which is in your packet. Specific directions for weight, height, body type and skin-fold thickness is given on this form. Record the data on this examination on the Physical Assessment Form.

## FOOD SERVICE COMPONENT

Menu Analysis and Site Observations:

Refer to directions on Menu Analysis and Site Observations Research Procedures.

(1) Observation of Practices - Record observations in the dry storeroom, refrigerator, freezer, preparation areas, and waste disposal areas. Follow Compliance of Practices Scoring Procedures and Project 2001. Provide notes when a determination cannot be made.

(2) Menu Items Planned vs. Served - Prior to meal service, observe plates from the food service operation. Follow Compliance of Menu Items Planned vs. Served. Assess using same method specified on the data collection form.

Observed Food Intake Data:

Refer to steps on Observed Food Intake Research Procedures.

## SCHEDULE/MANAGEMENT:

All of the needed materials have been packaged and labeled for each site. (If any of the questionnaires were not used, bring them back for future use).

Check with the site administrator on arrival and also when departing. Introduce yourself and the purpose for the visit. Express appreciation for the cooperation and participation of the child care site.

Return all data to the NET Office on the TTU campus when you return from the school(s). Make notes about any information the principal investigator or coordinator need to know.

## TRAVEL GUIDELINES:

### Schedule of Site Visits

The site visits, lodging (if needed) air and ground travel will be coordinated through the NET Office. The random selection of sites to visit was made by the project statistician. Those sites who responded positively to the invitation to participate will be considered for site visits.

Sites will also be scheduled in accordance with geographic locations. Contacts will be made with the site administrators; site visits will be scheduled in a time frame which will accommodate the sending and completion of questionnaires, parental involvement, and considerations for food service personnel.

Ground travel will be used for those sites within reasonable driving distance in west Texas. For other sites throughout the state, air travel will be arranged, taking into consideration economical fares. Lodging arrangements will be scheduled with adherence to the state allowance and proximity to the selected site agenda.

The team will receive a schedule of sites, lodging, and travel information. Contacts will be made if any modifications to the schedule are needed.

## CHECK OFF LIST

| Name of Day Care Home Provider | Telephone No. ( ) |
|---|---|
| Address of Day Care Home (Street, City, State, ZIP) | |
| Day Care Provider(s) Interviewed | |

| Date of Review | Time of Arrival ⌂am ⌂pm | Time of Departure ⌂am ⌂pm |
|---|---|---|
| Name of Sponsor | | |

What meal was observed?

⌂ Breakfast - consists of milk, bread and fruit/vegetable.

⌂ Snack (am/pm) - consists of any two of the four food components.

⌂ Lunch/Supper - consists of all four food components, and the fruit/vegetable must include at least two different servings.

The following items **must** be recorded/collected before leaving from the child care site visit:

1. _____ Breakfast/Lunch menu for the week of visit.

2. Food Service
   - ____ Observed Food Intake
   - ____ Compliance of Practices
   - ____ Menu Items (Plan vs. Serve)

3. **Parent** Assessment Booklets of all 3- and 5-year-old children.
   - ____ Questionnaires
   - ____ Family Medical Form
   - ____ Consent Forms

(Leave envelope with Day Care Provider if all booklets have not been returned. Ask to send any other returned booklets to NET Project Office.)

4. All interview material from:

   - ____ (a) Day Care Provider
   - ____ (b) Day Care Food Service Personnel
   - ____ (c) 3-year-old children
   - ____ (e) 4-year-old children
   - ____ (d) 5-year-old children